Telephony.

THE AMERICAN TELEPHONE JOURNAL

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What Makes the Sublicensee Work So Hard!

The sublicensee people, so we have always thought, are the most credulous men in the world. Do they not believe the Bell machine-made stories? That old weather worn snarl of yarns, which rose like the young Phoenix, from the ashes of expiring patent papers nearly twenty years ago, sound ever fresh and inspiring to a certain class of hero worshipping telephone men. They want to hitch their wagons to the big and bright Bell star, and, without further effort ride on amid celestial beauties to "that grand ideal of our marvelous president, universal service."

If there are any tightwads among sublicensee stockholders, however, the A. T. & T. Co. is likely to pay dear for its years of enjoyment of towage fees. They have in the majority of cases been on a liberal scale—except in competitive territory. The decision of the Wisconsin commission, reported last week, shows that, in its opinion, if we may interpret its mild language a little more tersely, about two dollars a year was a sheer exaction of Bell monopolistic greediness from the sublicensee subscribers. In the case reported, the tax was ingenuously unloaded on the subscribers. They wanted Bell long distance—let them pay the Bell piper seems to have been the theory. But in more cases, the tax is paid to Boston by the sublicensee stockholders. An unearned two dollars a year out of an average fifteen dollar rate is a stiff tax.

Superiority of Bell Instruments Exploded.

Of course, the sublicensee has always been more or less hypnotized by the trite Bell phrases referring to the "superiority of Bell instruments," "advantage of connection with our universal system," "free engineering and accounting advice," etc.

The Wisconsin commission has the advantage of the advice of engineers trained at one of the best technical schools in the world—the University of Wisconsin. More than this, its men have had actual field experience for some years, bringing them in contact with all kinds of apparatus under working conditions. Its decision that Bell transmitters and receivers are not superior to those of Independent manufacture is entitled to the highest respect. Knowing as we do the justice of this conclusion, we believe that this announcement of a commission noted for its fairness and careful research is entitled to the highest consideration.

There is no longer any excuse for a sublicensee company to drift along and submit to Bell extortion and manipulation for revenue, or tribute to Wall Street. The strength of the sublicensees is truly enormous. Of the total five and three-quarters millions of stations connected to the Bell lines, the "connecting companies" control nearly two millions they hold the balance of power. Organized, they could dictate terms, and, if they were fair, force their acceptance. It is high time for a sublicensee organization, along Independent lines, capable of securing to sublicensee stockholders the rights which belong to them as the builders of systems representing nearly a third of the total subscribers of the country. Such an organization could divert $4,000,000 every year from Wall Street to local stockholders in the form of dividends.

Just as We Supposed.

Theodore N. Vail, president of the American Telephone Company, said to the newspapers: "From such a cursory examination as I have had time to make of this great decision, it seems to me inevitable that it will prove to be an air clearer. Reason has been read into the Sherman law, and reason is always certain to temper a too literal interpretation of the statutes. As I see the situation, it seems that legitimate business interests have nothing to fear. In fact, they are given the protection of the courts, once they have established the fact that in their combination they have kept within the spirit of a reasonable and lawful combination."

Mr. Vail, in other words, agrees with us that the position of his company depends on the kind of evidence that could be brought into court. He knows what A. T. & T. has been doing. Rather shaky ground, is it not?

A Good Business to Stay In.

One of the most capable managers in the field had to talk some sense into a few directors who had been visited by a Bell agent. Their company is a success, and getting better every year. Of course, if it had not been a success, they would never have seen the Bell agent. But met him they had, and after listening, no doubt, to the customary flattery of their business intelligence, had heard a great deal about the costs and terrors of competition.

The thing came up at the directors' meeting; and when it did the managing director told his friends and colleagues on the board, all local business men, to look around town a bit, and find out where the telephone company stood in the matter of competition. It had only one competitor. What other business in their town was blessed with a competitor as weak and silly as the one they had in the telephone business? One which relied upon tricks and shallow devices instead of the straight business policy of delivering first-class goods and getting the money for it? What other business was controlled by a head so far removed? In fact, when it comes to competition would it be possible to find in any local industry a situation so free from complications as in the telephone business?

Then the manager turned his attention direct to the sell-out proposition. It seems that when some of the local directors had talked to the Bell agent the gentleman's impressive manner had set them quivering. They had lost their backbone and nerve, and were almost ready to lose some of their money whenever the Bell man should be pleased to stretch out his hand and take it. The manager straightened them out in about two seconds.

"Where are the Bell people going to make their profit if they buy us? Not from the subscribers they have, nor from the subscribers we have, after they pay our price and suffer the loss of combining the plants. Their profit will have to come from new business which is not now upon their books nor upon ours. What is the matter with getting that new business for ourselves? We have shown that we can lick them in getting business, giving service, and collecting for it. Now let us get out and get that new business they foresee and want so badly that they are willing to take us for the sake of getting it! The profit will feel as good in our pockets as in theirs."

A Voice from Missouri.

Out in the country, where the eye gets a free look at the blue sky, and there are no skyscrapers, stock market tickers and other city distractions to influence one, a man is pretty sure to take a sane view of a business proposition. This is the thought that came to us after reading a letter received this week from a telephone manager in a little Missouri town (You observe he lives in Missouri, and wants to be "shown"). Here is the letter:

> TELEPHONY, Chicago, Ill. Dear Sirs: I have been taking TELEPHONY four or five years; I have gotten a very great deal of good from it. The matter is generally interesting and edifying. I have been interested of late in Mr. Kelsey's articles; I like the way they are gotten up; it is original and plain, and I like his nerve.
>
> I wish to ask you a question: I have today been reading my paper, the *Kansas City Star*, and just noticed the market quotations. It quotes Home Telephone Co. stock at 109, and Missouri & Kansas Telephone Co. stock at 40. Now, of late we have been hearing a lot about the merging of the two companies at Kansas City, and it has been looking as though a deal of that kind would sure be pulled off. Now, what I wish to know is this: Does what I read fool me? Do I understand stock market quotations? If I do, then Missouri & Kansas Telephone Co. stock is not worth half as much as the Home. Home stock at 9 above par. The appearance is, then, that the Home company has a valuable property. Then, why sell, and especially to a company whose stock is quoted at less than fifty cents on the dollar? What's wrong? Could you give me any light on the subject, through the columns of TELEPHONY, or otherwise? I don't believe it would hurt for Mr. Kelsey to keep on talking. More anon.

The writer of that letter doesn't need any light. Undoubtedly he holds the same view that TELEPHONY does. "Why sell?", indeed! If information that comes from New York is correct, the Bell also is asking a similar question of itself—"Why buy when buying doesn't reduce competition and only adds to the public's hatred of monopoly?"

Free County Service Again.

One of the best letters on live topics which we have received in many a day is the one reprinted this week, dealing with free county service. You know we have been fishing for letters on this topic, and this is the first bite. We think we have landed something good. But we are not satisfied with one letter. We want several more.

If the telephone people are interested in this free county service proposition, and want to get things going on a better basis than they are, why in the world don't more people write to us, and assist in a campaign of education?

We know very well that there are men who are practising this free county service plan in practically every state in the country. Hundreds of them. We have suggested that they kindly step forward and defend the practice.

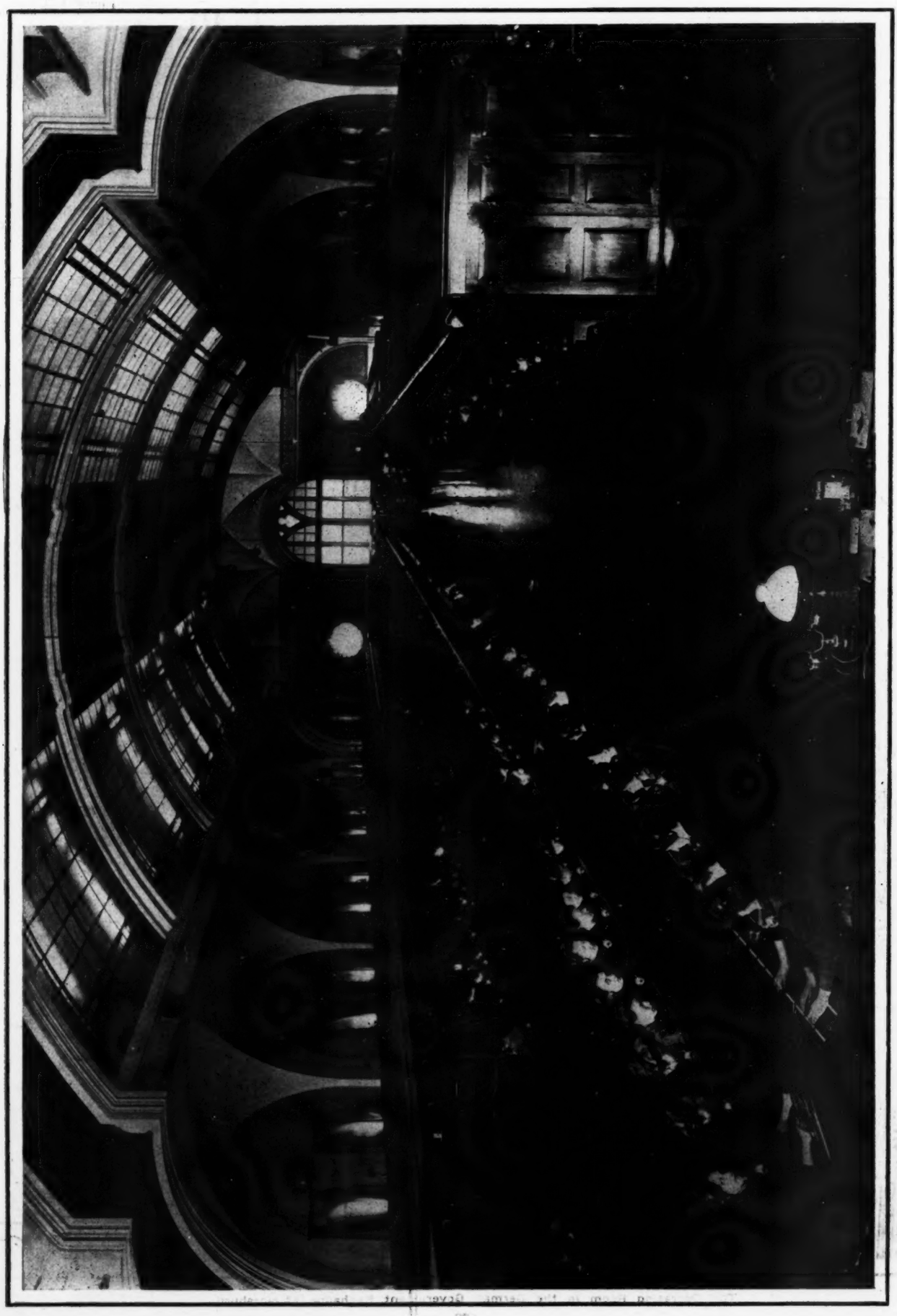
We have stated that it is harmful, is costing them money without bringing in return, and in fact is a most demoralizing factor in the business.

We are ready to go into the matter further and explain all these things in detail, and bring practical men forward to support our arguments. But we want to hear from the defence.

The writer of the letter in the current issue who attacks free county service so vigorously is a man who is thoroughly posted on the topic. He is an old telegrapher and a former Bell employe. He is now and has been for some years engaged in organizing small companies in the neighborhood of larger organizations. He has done this for both Bell and Independent companies. His record is familiar to us, and we know that he has been successful at this line of work. He tells us that he has never yet organized a rural company feeding into a larger one on any basis other than providing for tolls; that some of those companies have afterward been won over to the unlimited idea, and are now on the rocks.

OFFICE OF
DISBURSING OFFICER OF THE
BELL
CORRUPTION FUND
JUST THE EARTH, SIR? WOULD YOU LIKE A FENCE AROUND IT?
PUBLIC OFFICIAL
THE DECISION OF THE COURT IS THAT THE BELL CAN DO NO WRONG
THE JUDICIARY THEN
ANY BILLS YOU WANT PASSED TODAY, SIR?
LEGISLATOR
IF YOU DON'T SEE WHAT YOU WANT, GRAB IT
COMMON COUNCIL
TELEPHONY'S
E-MOTION PICTURES
THOSE WHO CAME LATE MAY REMAIN
CHARLES LEDERER

In the country at large, wherever the trust and the Independents have come together, it has been hot campaigning, and many black chapters have been added to our industrial history by the telephone trust. Courts have been manipulated, city councils corrupted, and the public press debased. There has been wholesale bribery, systematic wrecking, and, at times, violence, almost anarchy. Men who have stood highest in their communities have been induced by the reckless use of money to betray their friends and associates.—Fight with an Octopus.



First Photograph Ever Taken of Hamburg's Local Operating Staff, Handling the Traffic of 40,000 Lines from a Single Room.

Hamburg Exchange—Operating Center of 40,000 Lines

New Views Emphasize the Striking Features of This Enormous Exchange—Official Reasons for Concentration of Huge Equipment Under One Roof—An Ultimate Capacity of 80,000 Lines—Largest Telephone Exchange in the World—Operated on Manual Call Distributing Basis

By Dr Alfred Gradenwitz

When the German Postal Department some time ago took in hand a thorough reorganization of the telephone installations of the city of Hamburg, a most extensive centralization of the whole telephone service was decided on. In addition to the adoption of a thoroughly new type of plant, it was determined that the several telephone exchanges then in existence should be replaced by a single central office. Though this centralization entailed additional expenses for the wire distribution system or outside plant, the officials claim that this will be compensated by some highly important service advantages. They argue that the uniformity in control resulting from centralization obviously warrants a remarkable uniformity and simplicity in operation, a satisfactory and uniform training and discipline of operators, a more advantageous utilization of the personnel (both for the actual service and management) and, accordingly, considerable saving in the general working expenses.

The new Hamburg teelphone exchange is intended to replace all the individual exchanges so far in existence, covering the whole district of Hamburg. Its total capacity is for 80,000 subscribers, which makes it by far the largest telephone exchange in the world. At its first stage of completion, provision is made for 40,000 subscribers' lines, and extensions for 20,000 more are being constructed.

When the Postal Department entrusted the Deutsche Telephonwerke of Berlin with the design and installation of this gigantic telephone exchange, that firm had to solve a task of unprecedented magnitude. Thanks to the manual call-distributing system invented by Mr. Aven, a Swedish telegraph engineer, and improved by the Deutsche Telephonwerke, it is claimed that a most satisfactory solution was obtained. This manual call-distributing system is destined to insure a uniform and rapid completion of connections, as well as a more satisfactory utilization of operators. Its principle is that any call, as soon as it comes in, is referred to an idle operator. The switchboard equipment of the telephone exchange is for this purpose subdivided into three departments, one of which, the second, was, however, entailed by the magnitude of the exchange rather than the system itself. For, in order to obtain convenient multiple jack panels, and multiple jacks of dimensions as large as possible, while avoiding the use of any call numbers having more than four digits, the subscribers' lines were subdivided into groups of 10,000 each.

The three departments just referred to are the "call distributing board," the "answering board," and the "trunk board."

The call distributing board comprises the 40,000 answering jacks and lamps of all subscribers' lines in addition to

Toll Operating Room in the German Government Exchange at Hamburg.

a number of trunk lines with optical "disengaged" or "idle" signals, connecting with the two remaining departments. These trunk lines terminate at the call distributing board in a plug; at the answering board in a key; and at the trunk board in multiple jacks.

The answering board, in addition to the keys of the trunk lines, comprises for each trunk line a call-transmitting lamp and a number of order wire keys connected to the operators' positions of the trunk board. These order wire keys are in their turn provided with optical "idle" signals.

The trunk board comprises the multiple jacks of the subscribers' lines, the multiple jacks of the trunk lines and any arrangements required for the mutual connecting of subscribers.

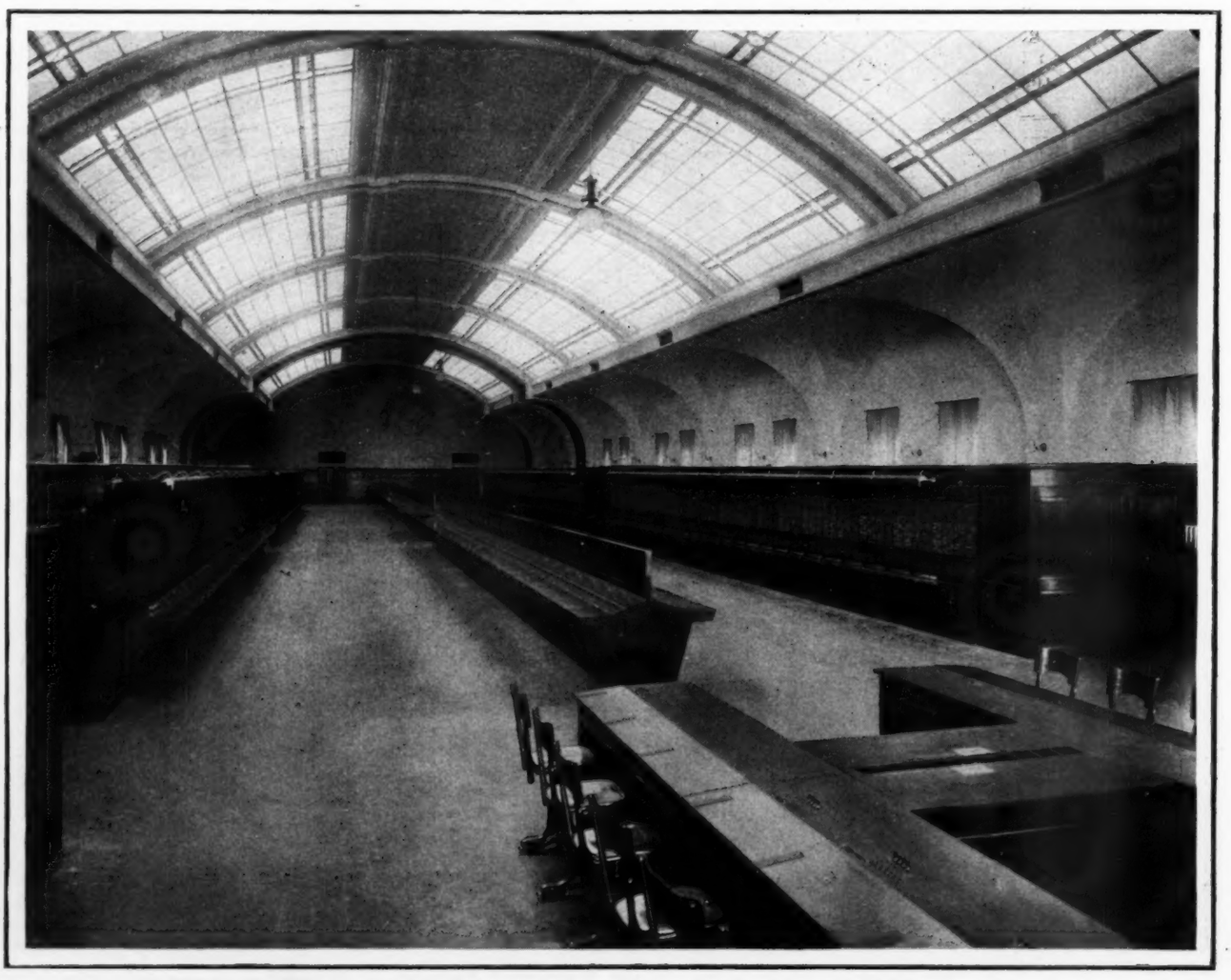
Since, in accordance with the above, calls are transmitted only to the operators happening to be disengaged, and obviously never to vacant operators positions, the number of operators employed can be readily adapted to the variable conditions of service, only the number of operators' positions actually required by the actual traffic being kept occupied in the case of slack business. This adaptability of the call-distributing system to operating conditions is said to insure a considerable saving in the number of operators as compared with the ordinary common battery system.

The process in completing a connection is as follows:

By taking the receiver off the hook, the subscriber lights his answering lamp in the call-distributing board. The operator at the latter inserts into the answering jack the plug of a trunk line leading to an idle answering position, thus lighting the call-transmitting lamp at the answering board. By pressing down a key located in front of that lamp, the answering operator gets in connection with the subscriber. After then being informed by the latter of the group desired, she presses down one of the order wire keys leading to the idle trunk operator's position of that group, and informs the operator there of the number of the trunk line used. The operator at the trunk board then introduces the answering plug of a double cord into the multiple jack of the trunk line stated, asking the calling subscriber for the number of the desired subscriber's line. She afterwards completes the connection by inserting the calling plug into the multiple jack of the desired line. Ringing of the subscriber occurs automatically. At the end of a conversation a double supervisory signal appears at the operator's position at the trunk board, being given automatically by severing the connection with the call-distributing board where the connection is broken by withdrawing the plug from the answering jack.

Atlanta Company Continues to Grow at a Rapid Pace.

During the month of April the Atlanta Telephone & Telegraph Co. added 270 new subscribers to its list, according to The Atlanta Phone Register, a supplement to the regular directory issued monthly by that company. Since the first of the year over 1,000 subscribers have been added, and Mr. A. B. Conklin, general manager, says prospects are very good and orders constantly finding their way into the company's office.



The Immense Local Operating Quarters at Hamburg. Now Equipped for 40,000 Lines, Capacity 80,000.

Five Amendments to Sherman Law Now Pending in Senate

Senators Take Immediate Steps to So Amend Anti-Trust Law as to Bring All Contracts in Restraint of Trade Under Its Prohibition—Are Not Satisfied with Supreme Court's Opinion as to "Unreasonable" Restraint—Claim President Taft is In Sympathy

The construction of the Sherman anti-trust law by the supreme court, and the reading into the statute of the words "unreasonable" and "undue" are held to be entirely unsatisfactory by many progressive Republicans and Democrats. These, as forecast by TELEPHONY last week, have now taken steps to so amend the Sherman law as to prevent any possibility of a similar construction in the future.

In addition to sweeping changes proposed in a bill introduced by Senator Kenyon, of Ohio, four other bills have been introduced so amending the act that every contract in restraint of trade shall be held to be illegal. These have been fathered by Senators Gore, of Oklahoma; Reed, of Missouri; Culberson, of Texas; and Jones, of Washington.

It is asserted that President Taft is strongly in favor of a move of this nature and his special message to Congress on January 7, last, is pointed to as sustaining this view. In this message the President said:

> It has been proposed, however, that the word "reasonable" should be made a part of the statute and that it should be left to the court to say what is a reasonable restraint of trade, what is a reasonable suppression of competition, what is a reasonable monopoly.
>
> I venture to think that this is to put into the hands of court a power impossible to exercise on any consistent principle which will insure the uniformity of decision essential to just judgement. It is to thrust upon the courts a burden that they have no precedents to enable them to carry and to give them a power approaching the arbitrary, the abuse of which might involve our whole judical system in disaster.

This is the position taken by Justice Harlan in his dissenting opinion, and it is the purpose of the progressive element in Congress to make the language of the Sherman act accord with it.

Senator Gore's amendment provides that "every contract, combination or conspiracy of whatever kind or character in restraint of trade or commerce among the several states or with foreign nations, which is declared to be illegal by an act entitled 'An act to protect trade and commerce against unlawful restraints and monopolies,' approved July 2, 1890, whenever made, engaged in or continued after the approval of this act, shall be presumed, construed or adjudged to be unreasonable.

"Section 2. That no contract or combination or conspiracy of whatever kind or character in restraint of commerce between the several states or with foreign nations, which is declared to be illegal by an act, 'An act to protect trade and commerce against unlawful restraint or monopolies,' approved July 8, 1890, whenever made, engaged in or continued, shall be construed or adjudged reasonable.

"Section 3. That every person who shall make any such contract or engage in any such combination or conspiracy shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a term of imprisonment of not less than two years or not more than ten years."

The proposed amendments of the other Senators mentioned cover practically the same ground as that of Senator Gore's. The bill introduced by Senator Kenyon, however, is much more comprehensive and drastic. It provides that any contract in restraint of trade is illegal, punishable as a misdemeanor in the case of a person by one year's imprisonment, and in the case of a corporation by a fine of $5,000.

The bill then goes on:

Section 4—The purchase of any stock in a corporation engaged in interstate commerce by another corporation engaged in interstate commerce doing a competitive or similar business, when such purchase would result in destroying competition in whole or in part between said corporations so engaged in interstate commerce shall constitute a misdemeanor, and if such stock be bought, taken or placed in any other name than that of the corporation, it shall be considered the same as if bought in the name of such corporation and the person in whose name it is so taken shall be guilty of a misdemeanor, and on conviction thereof every person so convicted of a misdemeanor, and on conviction thereof every person so convicted of a misdemeanor as provided in this section shall be punished by imprisonment for a term not exceeding one year, and every corporation so convicted shall be punished by a fine not exceeding five thousand dollars.

Section 5—The several circuit courts, of the United States are hereby invested with jurisdiction to prevent and restrain violations of this act; and it shall be the duty of the several district attorneys of the United States in their respective districts under the direction of the Attorney-General, to institute proceedings in equity to prevent and restrain such violations. Such proceedings may be by way of petition setting forth the case and praying that such violation shall be enjoined or otherwise prohibited. When the parties complained of shall have been duly notified of such petition, the court shall proceed, as soon as may be, to the hearing and determination of the case; and pending such petition and before final decree, the court may at any time make such temporary restraining order or prohibition as shall be deemed just in the premises.

Section 6—Whenever it shall appear to the court before which any proceeding under section 5 of this act may be pending that the ends of justice require that other parties should be brought before the court, the courts may cause them to be summoned, whether they reside in the district in which the court is held or not; and subpoenas to that end may be served in any district by the marshal thereof.

Section 7—Any property owned under any contract, etc. (and being the subject thereof), and being in the course of transportation from one state to another, or to a foreign country, shall be forfeited to the United States and may be seized and condemned by like proceedings as those provided by law for the forfeiture, seizure and condemnation of property imported into the United States contrary to law.

Section 8—Every person engaged in any business, a portion or all of which constitutes a violation of this act, shall forfeit by reason of such violation, any and all rights which such person may have to protection under or right to damages for infringement upon any patent right held or owned by such person, whether directly from the United States, or under purchase, assignment or otherwise; and the right to the free manufacture and use of any and all devices or machines so held under right of patent by the person who shall have violated any of the provisions of this act, shall thenceforth be open to all.

Section 9—Any person who shall be injured in his business or property by any other person or corporation by reason of anything forbidden or declared to be unlawful by this act, may sue therefor in any circuit court of the United States in the district in which the defendant resides or is found, without respect to the amount in controversy, and shall recover three fold the damages by him sustained, and the costs of suit including a reasonable attorney's fee.

Section 10—This act shall not affect in any suits or prosecution of cases pending under the act of July 2, 1890, known as the Sherman anti-trust law, and prosecutions or suits now pending or hereafter brought for offences already committed shall be conducted under

the terms of such act and punishment in case of conviction shall be as therein provided.

It is held in some quarters that no action looking to the amendment of the Sherman law will be taken during the present session of Congress, but the indications are strong that, on the contrary, some form of remedial measure will be forced now.

Meanwhile Attorney General Wickersham has commenced suit against the so-called lumber trust, and proposes to push it vigorously.

Curious Limitation of Powers of Interstate Commerce Commission Over Telephones is Found.

It has just developed that, in placing telephones under the jurisdiction of the Interstate Commerce Commission, Congress made a singular error by which the commission finds itself without power to exercise this jurisdiction to any considerable extent.

The first section of the law relating to interstate commerce was amended by inserting the words, "telephone and telegraph companies." It placed them on precisely the same basis as other common carriers and gave the commission authority to investigate and order them to carry out all of its rulings pertaining to discriminatory and unreasonable rates. The sixth section of the act states that all common carriers, such as railroads, express companies, and pipe lines, must file with the commission and keep on file in their offices a full list of their charges. Congress failed to amend this section by inserting telephone and telegraph companies.

Here is the rub, according to members of the commission. The implication that the companies must file their tariffs along with other common carriers is strong, but the fact is not specifically stated. If the commission has no authority to order the companies to file their rates it will be impossible for them to carry through any deep investigations or to arrive at what is an unreasonable and what a proper rate for the transmission of a message. When an additional complaint is made with the commission against any single rate the tribunal will receive the necessary data from the complainant and will investigate upon this data, as a basis. If the commission receives many complaints and has to investigate them singly it will take a great deal of time.

The commission has studiously avoided touching upon this point. As a matter of fact, there is a difference of opinion in the commission on the point at issue. At least two members are of the opinion that the tribunal cannot order the companies to file their tariffs. The remainder have been noncommital. Chairman Clements said recently that the commission had avoided passing upon the point, and that there is no reason to believe that it will touch upon it in the near future.

"You cannot tell what seven men will decide upon a question of this sort," he said. "There may be differences of opinion as to our authority. The implication is strong that the telegraph and telephone companies were meant by Congress to file their tariffs with us. But Congress carefully refrained from making a specific statement along this line. We may try to settle the question ourselves, and we may report the matter to Congress and ask it to specify its intention. I am not in a position to state what action the body will take.

"One thing, however, is certain: If we attempted to settle questions that may arise, we would be swamped. Without the companies' tariffs it would be virtually impossible for us to carry out the law, as it refers to other common carriers, if we get as many complaints from their clients as we do from shippers. It would be physically impossible to investigate each case that might arise without tariffs on file here."

Interstate Commerce Commission Hands Down First Ruling Since Given Telephone Jurisdiction.

The Interstate Commerce Commission has announced its first decision regarding a telephone company. The present case was brought upon the complaint of William D. Shoemaker, a resident of Maryland, just over the District of Columbia line, against the Chesapeake & Potomac (Bell) Telephone Co. The decision was written by Commissioner Harlan, and it rules as follows:

1. As between subscribers to a telephone service who are similarly situated, nothing but a difference in the service rendered or facilities furnished can justify a difference in the charges exacted.
2. The fact that a few subscribers connected with a new exchange were previously connected with another exchange which was abandoned by the defendant for motives of economy in management and efficiency of service is not such a dissimiliarity of circumstances and conditions as to warrant the exaction of the current charges from a new subscriber while for the same service and facilities the old subscribers continue to pay the lower charges formerly exacted at the old exchange.
3. The contracts between such old subscribers and the defendants, even though valid when made, cannot, after Congress has undertaken to regulate the rates and practices of telephone companies, be accepted as justifying different charges as between different subscribers similarly situated, such undue different discriminations being forbidden by the act.

Shoemaker, a new subscriber, was charged a rate which had been established upon the abolition of the local exchange. A number of old subscribers, under their old contracts, were paying $24 a year, while Shoemaker was charged double that amount. As a result of his activities, these old subscribers must now pay the higher rate.

General Manager Heller, of Louisville, Independent, Makes Definite Statement as to Control.

In order to have an authoritative statement as to the situation of the Louisville group of Independent telephone companies, regarding which so many rumors have recently been afloat, TELEPHONY wrote S. M. Heller, general manager of the Central Home Telephone & Telegraph Co., now the dominating corporation of the group. Mr. Heller's reply is here appended in full:

TO THE EDITOR:

I have your letter enclosing a clipping from *Financial America* with reference to the Central Home Telephone & Telegraph Co.

The only part of the article in which there is any truth is that referring to the purchase of the controlling interest in the Bowling Green Home Telephone Co. This property was purchased for the reason that it has always been intimately associated with our properties, and there was a chance for the control to be acquired by adverse interests.

There is no truth whatever in the report that the Central Home Telephone & Telegraph Co. is controlled by J. P. Morgan & Co., nor to the best of my knowledge and belief have J. P. Morgan & Co. any interest whatever.

I have heard of no merger being in contemplation taking in the Independent plants in Kentucky, Tennessee and Alabama, and feel sure that if there was anything of this kind I would be one of the first to hear of it. CENTRAL HOME TELEPHONE & TELEGRAPH CO. S. M. Heller, General Manager.

No comment appears necessary on the foregoing statement. It is definite and categorical.

Denver Cannot Regulate Rates.

Telephone rates for Denver cannot be regulated by the board of supervisors, according to an opinion of City Attorney Lindsley filed last night with the board. This opinion is based on article 15, section 13 of the constitution, which gives the Legislature full power over telegraph companies and, incidentally, telephone companies. A pending bill radically reducing rates was referred to the committee on streets and railroads for more legal advice.

The North State Independent Telephone Company

A North Carolina Success—The Reason is Plain—Some Lessons on Competition

By J. C. Kelsey

High Point, N. C., is the furniture city of the South.

If the reader will investigate, it is a safe bet that his house has furniture from High Point.

In this city of 12,000 people, you will find 100 factories, beautiful homes, well-paved streets and every municipal advantage.

High Point got its name from the surveyors of the Southern Railway. It is surrounded by beautiful country and rich farming lands. Its winters are mild and the mountains relieve the summer by cool breezes.

North Carolina, to my mind, is the greatest state of the South.

Traditionally, the South made social distinction between labor of hand and labor of brain.

Today you will find the people of North Carolina as fond of work as the busy northerner. You will find North Carolina laws sensible and enforced, too.

High Point goes further than most manufacturing cities.

It has encouraged the factory laborer to own his home.

Liberal building and loan associations thrive and are operated for the benefit of the home buyer.

As a result, there is little disposition to float. The factory man has a pretty home. His wife is happy. The children are in good schools.

Strikes have no encouragement there.

Owner and laborer have solved a great mutual problem without outside interference.

The annual freight bill of High Point has gone beyond the million dollar mark.

Passenger traffic is very dense—and as a tribute to it, High Point has one of the most beautiful depots in America.

High Point had 2,000 people in 1890.

It had 5,000 people in 1900.

It now has 12,000, and reveals the growth of southern conditions.

Naturally, High Point had no telephone service in 1895.

The Bell company did not care to go extensively in the small town exchange service. It had but five exchanges in the state at that time.

In 1895 J. F. Hofman organized a telephone company with $1,000 capital.

He operated the plant three years and finally interested T. J. Finch and J. F. Hayden.

It has been the history of every Independent telephone enterprise that it outgrows the financial abilities of any one man.

Here was a company that was not a promoter's dream.

The Bell company pretends to despise the promotor, yet it foolishly encouraged promotion because of its foolish tendency to pay high prices for competing plants.

The company at High Point was not built for promotion purposes. It was designed to give service to a busy town which had no other.

In 1905, the North State Telephone Co. was organized.

It took over the property of the local company for $18,000. It secured an unlimited franchise.

The rates are $2.00, $1.50 and $1.25.

It built a complete common battery all cable plant.

It owns 42 miles of copper toll line, connecting Winston Salem and Greensboro—where it operates four and eighteen toll stations, respectively.

The balance sheet for 1910 is as follows:

Cost of plant March 1, 1910:

Replacement value less depreciation	$38,964
Extensions for 1910	5,290
Accounts receivable	800
Bills receivable	62
Cash on hand	884
Total assets	$46,000

The liabilities are:

Capital stock	$20,000
Accounts payable	1,260
Bills payable	3,100
Total	$24,360

Summarizing, the surplus of the company is as follows:

Assets	$46,000
Liabilities	24,360
Surplus	$21,640

As the capital stock is $20,000, or 200 shares with a par value of $100, the physical value of the stock in this company is $208 per share.

If any Bell critic can find anything to criticise here, I would like to know what it is.

The annual performance of this company is as follows:

Gross income	$17,358
Cost (54 per cent)	9,184
Net for reconstruction, dividends and extensions	$ 8,174
Reconstruction	2,700
Net for extensions and dividends	$ 5,474
Dividends, 10 per cent	2,000
Net for extensions (17 per cent.)	$ 3,474

On a telephone station basis, the North State Telephone Co. performs as follows:

Capitalization per telephone, $20.00.

Gross earnings	$19.30
Cost	10.20
Net	$ 9.10
Reconstruction reserves, etc	3.00
Net for dividends	$ 6.10
Dividends	2.20
Extensions	$ 3.90

We have heard so much from the Bell press bureau that Independent telephone plants are over-capitalized.

Here is a modern plant capitalized at $20 per station.

Can the Bell beat it?

Or can anyone?

The North State Telephone Co. gives excellent service to its subscribers for an average cost of $19 per year, including tolls, yet it pays 10 per cent. to its stockholders, it takes care of depreciation and has the ideal position of having money out of earnings for small extension purposes.

The explanation of this magnificent performance is a man.

His name is J. F. Hayden.

He is a telephone man. He is an inventor, builder and business man. He knows the business from the North Carolina ground up.

When the Bell bought Augusta Independents, Mr. Hayden went there with money in his pockets to buy the complete new common battery switchboard and telephones.

With his own hands, he dismantled the board and reinstalled it at High Point.

No company ever did a better job.

That explains the low capitalization of this successful company.

It shows that local influences have more chance for true economy than universal or Bell influences.

The Bell talks considerably of waste, yet it would never occur to them to make a saving anywhere.

What is the use?

The public is to pay it!

Mr. Hayden has wider influence than High Point.

I have merely shown the High Point performance, because it typifies the other properties.

The Lexington Telephone Co. operates 400 telephones in a live town of 4,000 people. It also owns 24 miles of copper toll lines, connecting Salisbury, where it operates six toll stations.

The company is jointly owned by five men, including C. C. Muse, J. F. Hedrick and Mr. Hayden.

W. F. Harris is manager at Lexington. He is an all-around telephone man. Between him and Mr. Hayden there are no unsolved problems.

The Thomasville Telephone Co. operates 300 telephones in the town, also 20 miles of copper toll line.

Several men jointly own this property; J. A. Green, president; F. S. Landis, C. R. Thomas and Mr. Hayden.

The Hayden properties cover the following counties, and connect 5,000 telephones:

Alexander,	Randolph,
Cabarris,	Rowan,
Davidson,	Stanley,
Gilpin,	Irewell.
Montgomery,	

True to tradition, after Mr. Hayden had gone into the field to demonstrate the actual necessity of telephone service in that prosperous community, the Bell cast envious eyes upon the locality.

They descended upon High Point.

They made speeches and talked civic righteousness, and claimed right of divinity to make Mr. Hayden sell or move away.

The Southern Bell company shows the helplessness of big interests in any contest with local interests if the local interests are courageous enough to fight.

Finding that they could not bulldoze J. F. Hayden, they set to work to build a new common battery all cable plant at High Point.

They put a $5,000-a-year man there as manager—at least they claimed that his salary was that high.

But it was no use.

Today that high-priced plant at High Point has 35 pay stations while Mr. Hayden operates nearly a thousand regular stations.

This typifies the alleged advantages of the Bell company on the policy of universal connection.

They are fighting for a theory of telephony which has no foundation in fact.

Telephone conditions are of a purely local nature.

How the Bell can attach any importance to the universal toll connection, when their rentals or local earnings are three times greater than their long distance or universal earnings, is incomprehensible.

Universal connection is a dream of foolish financiers.

And they can not overcome the natural handicap of local conditions by the brute force of money.

Mr. Hayden merely has pulled the lion's skin off the braying ass.

He refused to be browbeaten or bulldozed by universalism, and today he stands as a demonstrator of the local telephone issue.

That the people do not care to return to monopoly is conveyed in an editorial of the Utica (N. Y.) *Observer*:

"We have sometimes doubted the wisdom of wiping out competition in any branch of human endeavor, but the question arises, whether an organization formed by men has yet acquired the wisdom to administer justly, impartially and unselfishly while it has in its hands a monopoly of that which it administers."

Today, the Bell interests are preaching monopoly under state control or regulation.

They advocate commissions in states where they know they are whipped, and fight against them when they think they have a chance to defeat their opposition.

The whole theory of the Bell cry is to create some power which will prevent future competition.

Commissions can not overcome the greatest defect of monopoly.

They can not compel them to extend service to the lean spots where they think it will not pay.

The evil of over-charge by monopolies is a lesser one.

But whenever a state commission does give a contrary decision, the beautiful theory of state control is exploded because the abused (?) company flies into the courts for relief.

Monopoly is a joke, and the Bell know it, but they are trying to save their face. They have been defeated; they know it.

But the moment they get on their feet again, they will repeat their past folly.

High Point, with its many plants, knows the value of healthy competition.

Vain platitudes, published in expensive magazines, will find no receptive mind in this progressive city.

The North State Independent Telephone Co. shows its strength and its energy by even its directory.

The officers of the company are:
W. H. Ragan, president.
C. C. Muse, vice-president.
W. H. Townsend, secretary and treasurer.
J. F. Hayden, manager.
The directors are all wide-awake business men:

W. H. Ragan,	W. P. Pickett,
W. L. Slanaty,	C. C. Muse,
J. S. William,	A. B. Harney.
J. F. Hayden,	

On the front page of their directory are these words:

A BIG SAVING
FIGURE IT OUT.
BY HAVING AN
INDEPENDENT TELEPHONE
SERVICE
HIGH POINT

saves annually more than $10,000 over other cities in North Carolina where there is no Independent telephone company, same number of telephones considered.

THE REASON IS PLAIN

MORAL: The North State Independent Telephone Co. did it.

Manford Savage, President of the National Association, Gives His Views on Standard Oil Decision.

In response to a request from TELEPHONY, Manford Savage, president of the National Independent Telephone Association, expressed himself regarding the Standard Oil decision as follows:

"Any statement made at this time as to the effect of the decision of the Supreme Court in the Standard Oil case would be premature. The results can be better told after corporations have shaped their course to fit the law as announced in the decision. Again there seems to be some uncertainty as to the extent the decision really goes.

"I think, however, that Independent telephony will form no exception to the rule that all legitimate business will be helped by the decision. If adjectives are used in the language of the decision which would seem to weaken rather than strengthen the Sherman law, as some claim, all uncertain claims can be explained or definite meaning given to the same in subsequent decisions or this objection can be overcome by legislation by Congress.

"If the decision does not kill this octopus and similar ones it at least cuts their tentacles by saying: 'Thus far you shall go and no farther'; that there can be no extension of a corporation or trust to such an extent that competition is prevented in any line of business; and that this extension shall not go on until a few men control all transportation, all manufacture, all commerce, all food supplies, and everything that human beings require for pleasure or subsistence. This is a condition which was fast approaching and which in my judgment, has been effectually checked by this decision. This result will bring a peculiar sense of security and satisfaction to every Independent telephone man in the United States."

Ohio House Kills Yount Merger Bill—Winters Bill Now Only Measure Pending Before Assembly.

The attempt to pass the Yount telephone bill through the Ohio House on the last day of its session before adjourning for the usual recess failed and the bill will never become a law at this session. The bill was passed in the Senate by a vote of 18 to 9, and taken to the house immediately. After the first reading it was taken up for the second and, on motion to suspend the rules for the second reading, the motion lost, thus killing the bill.

The House progressives were on their guard and prevented the bill from coming to a vote. Representative Kennedy, of Allen county, made the motion to give the bill the second reading. If the motion had carried it would have permitted the bill to be referred to a special committee, which would have placed it on the calendar for final action May 31, when the General Assembly reconvenes after the usual recess.

This effectually stops all telephone merger legislation excepting what may be enacted in the Winters utilities bill, which is now in the hands of a joint conference committee of both houses. What action will be taken by the joint conference committee and finally by the two houses is a matter of conjecture only.

President Vail, of A. T. & T. Declares No New Financing is Contemplated in Near Future.

When asked regarding the report that the American (Bell) Telephone & Telegraph Co. would probably do some financing in the near future, President Theodore N. Vail said:

"No financing of any kind is under consideration at present, as all our current needs are amply provided for by existing funds. The requirements for plant additions under way or in contemplation this year will hardly exceed $45,000,000, of which $30,000,000 will be provided out of present resources of the different companies."

Regarding the cable report from London of legal difficulties delaying the proposed Western Union-Angle-American cable arrangements, President Vail stated that he knew of no such difficulty, as only a lease of the Anglo-American cables was contemplated. He said he was expecting definite word from week to week of the final closing of the proposals for a lower rate for deferred service, and the leasing of the five Anglo-American cables to the Western Union.

Postal Telegraph May Cut Rates.

It is reported in Chicago that the Postal Telegraph Co. will either institute a general reduction in rates or institute a day letter service in order to meet the day service of the Western Union. Clarence H. Mackay is said to regard the latter's service as an indirect cut in rates, and is prepared to meet competition in both the telegraph and cable field.

At the New York offices of the Postal, officials stated that nothing would be given out now regarding the Chicago report.

Electric Pool Canceled in Face of Suit.

The General Electric and Westinghouse Electric companies have canceled their fifteen-year patent pool agreement, a few months before its expiration, due in part to the government's attitude disclosed in the suit brought against the alleged lamp pool composed of the General Electric, the National Electric Lamp Co. and thirty others.

Cuban Telephone Co. Declares Dividend.

The Cuban Telephone Co. has declared a dividend of 1 per cent, payable July 1.

San Francisco Independent System Described by S. G. McMeen Before Western Society of Engineers.

Samuel G. McMeen was welcomed back to Chicago by his friends in the Western Society of Engineers and American Institute of Electrical Engineers at a meeting held May 24. The paper of the evening, read by Mr. McMeen, with many interpolations offered in the manner characteristic of this genial speaker, described the Independent telephone system in San Francisco and its neighborhood, which was designed, built, and managed for a year under the direction of Mr. McMeen. It serves the cities of San Francisco, Oakland and Berkeley, having about 609,000 people.

Maps exhibited showed that the city has been well covered by the Home Telephone Co.'s distribution system. A large part of the wire plant is carried in underground conduits, which contain sufficient ducts to carry cables required up to 1925. The main conduit runs are of vitrified terra cotta or bituminized wood fibre. Laterals are of these materials and iron pipe. Of course, freezing in laterals is unknown in the climate of San Francisco. Ducts in the trench vary in number from four to eighty, and whatever the number may be there are no more than four ducts in a horizontal layer. A concrete envelope completely encloses the ducts. The maxmium thickness is three inches on top, bottom and sides. In less severe conditions the side concrete is two inches thick. The system was laid out and built immediately after the earthquake and no records of existing underground structures were available.

In the San Francisco system the two subscribers having the longest lines to the central office, joined by the longest trunk lines, get an equivalent of about 9 miles of standard cable transmission.

Cables for subscribers' lines are No. 22 B. & S. gauge wire, and those for trunk lines of No. 20, 19 and 13 gauge, the latter forming the land portions of trunks running through submarine cable. Drop wire is almost entirely of No. 18 B. & S. soft copper, which has sufficient tensile strength for use under the climatic conditions. No. 19 interior wire is used in buildings.

Terminals developed for use in San Francisco consist of two slabs of porcelain carrying the binding screws, the slabs being so formed as to assemble into a tubular box which may contain the sealing compound through which the paper insulated wires pass to the binding screws. Terminals of this type are compact, furnish high insulation, are inexpensive and can be attached to a pole, fence or wall with maximum ease and simplicity. It is felt that they represent a simple, high grade solution of what has been an annoying problem. All lines which go far enough from a central office to contain any aerial wire whatever are made to contain thermal and other protective devices, capable of diverting foreign currents of any dangerous amount or kind. These protective devices are located in the central office and in subscribers' premises, protecting the apparatus and surroundings at both locations.

Mr. McMeen described and showed views of the very interesting fireproof central office buildings. The operating room floors in all of the offices are of cement-finished concrete without further covering of wood, tile or linoleum. They are treated with Toch Bros.' cement filler. As the floor wears, the cement surface taken on a dull shine; but four years' wear has not shown any sign of cement dust and none seems likely. Untreated cement floors are not permissible in operating rooms containing electrical apparatus, as cement dust vitrifies in an arc or spark, forming a glaze which is a good insulator and is difficult to remove. No such dust can be detected in the operating rooms described.

The switching equipment of the system is of the automatic type. The equipment in the mainland offices is of the three-wire type, and that of the San Francisco offices is of the two-wire type.

The entire equipment is provided with a system of wiring for service meters, so that the calls on any line may be counted automatically. Meters are omitted from flat rate lines, but a meter may be attached to any line with little labor. The meters count in plain Arabic figures to 10,000 and repeat, and only answered calls are recorded. A call which finds a busy line or which reaches an unattended telephone cannot operate the meter. A call from a Chinatown telephone to a Chinatown telephone is not recorded, as local service with Chinatown is on a flat rate. A call from a Chinatown telephone to another outside of Chinatown is recorded, as the price of such outside calls is added to each Chinatown flat rate.

Automatic private branch exchange equipment is used in apartment houses. The advantage of this is that the service is available all day, every day. With a manual switchboard in the office of the apartment house, there often is not enough traffic to warrant keeping an operator on duty all day and all night, so that during early morning hours it sometimes is difficult to call or be called. The automatic apartment house system obviates this difficulty.

At the conclusion of Mr. McMeen's paper Mr. Wray called upon the following, who contributed briefly to the discussion: W. Lee Campbell, Arthur Bessey Smith, DeWitt Tanner, E. H. Smythe, and F. H. Reed. Mr. Smith called attention to the portions of Mr. McMeen's paper which show to what extent the automatic system possesses the features of flexibility and reliability.

Fairbury, Nebraska, Man Writes a Poem on the Lineman —Here Printed in Full.

Harry M. Jones, of Fairbury, Neb., "writ a pome." It is printed below, together with his letter. We have cautioned Mr. Jones against trifling too frequently with the poetic muse, but inasmuch as his features, through the medium of TELEPHONY, have been sent all over the country, we have consented to let the product of his imagination travel the same route. Here is his letter:

TO THE EDITOR:

Enclosed find a little piece of poetry which I have composed myself. It may not be marked just right but you can fix it. I am employed with the Fairbury Telephone Co. Fairbury, Neb. We take TELEPHONY and think it is all O. K. Some time ago our wire chief, C. W. Bartlett, mailed you a little item of trouble shooting on a motor cycle which you made up, and we thank you very much, for that was my picture and I didn't think my face would be made public all over the country. So make this up if you wish and we will see it in the next week's TELEPHONY.

And this is the poem, which we have not attempted to alter by so much as a line:

WHO IS HE?

Who climbs up a pole? How brave he must be!
Who tosses his head like a squirrel in a tree?
Who looks like a bird far up in the sky?
Who kisses the clouds as they pass by?

Who finds a pole's summit far above our town?
Who looks around and wonders how far it is down?
Who mends all the wires while up out of sight?
Who does the wind toss about like the tail of a kite?

Who catches all the cold that passes over the town?
Who hammers his toes and wishes he was down?
Who then pats his hands and rubs them together?
Who has to be up there in all kinds of weather?

Who starts to come down that long, long depth?
Who would pick up the remains if he missed one step?
Who casts his eyes downward? Heaven don't let him fall!
For he is a telephone man; that is all.

Transmission Efficiency of New Loaded Circuits

Concluding Abstract of a Paper Entitled "Some Recent Advances in Transmission Efficiency of Long Distance Circuits," Presented at a Meeting of the New York Telephone Society—It Describes the Results of Loading Long Lines, Both Open Wire and Cable

By Bancroft Gherardi,
Engineer of Plant, A. T. & T. Co.

The underground conduit between New York and Washington is now completed, except for a few miles, and these will be built before the summer. The underground conduit between New York and Boston is to be completed this season. This will make a continuous underground cable route about 475 miles long.

It is proposed to place therein an underground cable, some of the circuits of which will be so efficient from a transmission standpoint that it will be possible to give telephone service between Washington and Boston over these underground conductors. This will be by all odds the longest telephone cable in the world.

The interesting feature of this cable, from an engineering standpoint, is that it is so constructed that practically all of the circuits in it may be phantomed and so that these phantom circuits as well as the side circuits of which they are made up can be loaded.

The loading problem on these cable circuits does not differ substantially from the problem of loading aerial phantom circuits which has already been described. The difficult work in connection with the design and construction of the cable was to have the circuits sufficiently well balanced so that they could be loaded and phantomed without bringing in objectionable crosstalk.

The make-up of this cable is shown by Fig. 5. In the middle of the cable there are 14 pairs of No. 10 B. & S. gauge conductors. Outside of these there are 36 pairs of No. 13 gauge conductors. In the spaces between the No. 13 gauge conductors and the No. 10 gauge conductors, 6 pairs of No. 13 gauge conductors have been put in because there was space for them. At the outside of the cable 18 pairs of No. 16 gauge conductors have been placed because there was room for them. All of the No. 10 gauge pairs and the No. 13 gauge pairs, except the 6 put in between the 10's, are arranged so that they can be phantomed. That is to say, they are arranged in what we call a "quad formation." Each of these quads is built up by taking two twisted pairs and twisting them together, giving due attention to the length of twist employed on the pairs, and in twisting the pairs together. By this construction an arrangement is obtained which can be phantomed, providing certain necessary balances of capacity exist. For example, it is important that the capacity of each wire to the other side of the quad, that is, the other pair, should be the same as the capacity of its mate. To attain this result, care must be exercised in manufacturing to see that the two wires going to make up the pair are twisted together symmetrically, that is, that there is no tendency for one wire of the pair to be straight or nearly straight, and for the other wire to spiral around it. In the same way, care must be exercised in twisting up the quad that the two pairs twist about each other evenly.

In connection with splicing up this cable, care must be exercised, not only to see that the wires are correctly jointed together, but at certain points tests are made to determine the capacity unbalance of the circuits in two directions, and at these splices to so associate the wires and pairs as to have these unbalances in opposite directions, that is, so that they will tend to neutralize each other.

These precautions are necessary because the transmission efficiency of the cable is so great that cross-talk taking place at a considerable distance from either of the stations at the ends of the cable would be much more audible than in circuits of lower transmission efficiency.

I have already mentioned that the loading coils themselves are of the same general type as those used for loading aerial phantoms and the side circuits of phantoms. Those for use on the No. 10 circuits are almost as big as the coils used for loading open wire circuits. It is necessary to make them of this size in order to reduce the losses in the coils to a sufficiently small amount. The coils are spaced at intervals of about 1.4 miles, the side circuit coils and phantom coils being placed at the same point. This spacing is determined by the capacity of the conductors, the side circuits having a mutual capacity of about .070 mf. per mile and the phantom having a mutual capacity of about .1 mf. per mile.

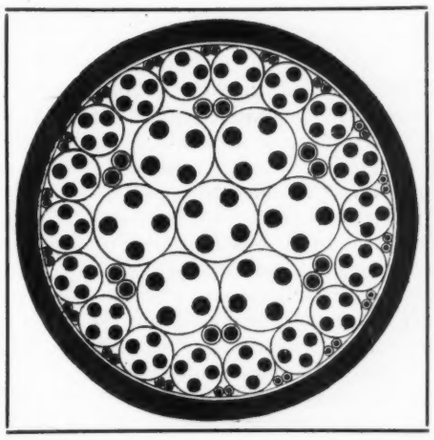


Fig. 5.—Cross-Section of Cable.

The transmission efficiency of these circuits is interesting, and in this connection I may say that while a sufficient amount of this cable has not as yet been manufactured to permit of actual transmission tests on it, so great is our confidence in formulae for computing these efficiencies which have been developed as a result of our studies and experiments that we are satisfied that the results predicted will be obtained, and the manufacture of about 150 miles of this cable at a cost including loading of about $1,000,000 has been recommended with complete confidence in regard to the results.

The distance from New York to Washington is 235 miles. The most efficient circuits in this cable will be No. 10 phantoms. These will have a transmission efficiency equivalent to only 13 miles of standard cable. That is, they are nearly twenty times as good as standard cable and decidedly better than unloaded aerial No. 12's. The physical No. 10 circuits will have a transmission efficiency between New York and Washington of 16 miles of standard cable.

*Reprinted by courtesy of *The Telephone Review*, published by the New York Telephone Co.

The phantomed 13's—21½ miles of standard cable and the physical 13's—28½ miles of standard cable. These last circuits would not give good service from all subscribers in Manhattan to all subscribers in Washington. They will, however, be very useful from New York to Philadelphia, Wilmington and even Baltimore, and for other combinations such as Philadelphia and Washington. Between Boston and Washington the only circuits that can be counted on for commercial service will be the phantomed No. 10's. These will give a transmission efficiency between test boards of 26 miles. This will be sufficient to insure the service in case the open wire lines are down, although it is not expected that they will have to be used in this way, because it is not likely that there will be so many breaks in the lines that the cable would have to be used at any time all the way from Boston to Washington. All open wire lines are not likely to be down at the same time both north and south of New York City. The cable intersects the open wire lines at numerous points between these two places so that patches can be made at short intervals.

Approves Telephony's Cartoon Campaign.

I notice with approval a cut in TELEPHONY illustrating the burning of telephone equipment away back in the beginning, when the policy of the Bell company was in striking contrast with the policy of that company today, when the fight is almost won by the Independents.

It is hard for me, as an old timer, to understand how any persons familiar with the early history of the telephone business, can for a moment lean towards anything that will connect them, or associate them—the Independents—with the Bell company.

I believe a series of illustrations such as you produced in the issue of April 29, accompanied by special quotations, will enlighten at least those who know nothing whatever of the conditions existing in those early days, or how the fight was won. If these early days were understood better, perhaps there would not be so many willing to surrender now under any conditions. If ever there was a time when the Independents should hang together, that time is now.

Franklin, Pa. Chas. H. Gogel.

Secretary of Northwestern Cedarmen's Association Issues Report on Pole Situation.

Secretary H. H. McKinney, of the Northwestern Cedarmen's Association, has just issued a report showing conditions governing the present supply of white cedar products and a forecast of what is likely to be the result before the close of the year 1911. The report is as follows:

The white cedar situation at the present time and conditions governing the same show that seasoned stocks of all lengths of posts and poles are unusually low. Indications are that dealers are facing a steadily increasing demand for stock, with a much smaller source of supply than was on hand at the same time a year ago. With an increase of consumption of 10 per cent. in 1911 over 1910, stocks of all sizes from 7-foot posts up will be practically wiped out before another logging season is finished.

Statistics show that on January 1, 1910, there were on hand about 3,300,000 more pieces of all sizes from 7-foot posts up than on January 1, 1911, and about 875,000 more poles from 16 foot up than on January 1, 1911. The production for the winter of 1910-1911 is easily 20 per cent. below the estimate, which, added to the greatly reduced condition of the seasoned stocks on hand, points to very little stock being left in the hands of the dealers January 1, 1912. This condition will be especially pronounced in pole stocks from 16 foot up.

The report of the Department of Commerce and Labor, Bureau of the Census, Forest Products, shows that in 1907, 2,109,477 cedar poles were used in the United States, in 1908, 2,200,139, and in 1909, 2,439,825, an increase of .156 per cent. in 1909 over 1907. It is a conservative estimate that the consumption of cedar poles in the United States in 1910 exceeded 1909 by 10 per cent. and indications are that 1911 will exceed 1910 by the same ratio, which would show a consumption in 1911 of 2,952,187 poles, of which possibly 500,000 would be Idaho or Western cedar, leaving 2,542,187 white cedar poles to be used. The following schedule shows the estimated 1911 available supply of poles as compared with 1910. As shown by this schedule, should the consumption of poles in the United States in 1911 come up to the estimate there would be between 850,000 and 900,000 less poles on hand January 1, 1912, than on January 1, 1911. We arrive at this conclusion, as follows:

1910.

	Poles.
On hand Jan. 1, 1910, 16 ft. and up	2,293,761
Production winter 1909-1910, 16 ft. and up	811,800
Total supply, 1910	3,105,561

1911.

On hand Jan. 1, 1911, 16 ft. and up	1,422,244
Production winter 1910-1911, 16 ft. and up	1,238,400
Total supply, 1911	2,660,644
Available supply 16 ft. and up in 1910 exceeded 1911 by	444,917

GOVERNMENT REPORT.

	Poles.
Cedar poles consumed in United States, 1908	2,200,139
Cedar poles consumed in United states, 1907	2,109,477
Increase, .043 per cent. over 1907	90,662
Cedar poles consumed in United States in 1909	2,439,825
Cedar poles consumed in United States in 1908	2,200,139
Increase of .108 per cent. over 1908	239,686
With an increase of 10 per cent. over 1909 the pole consumption for 1910 was	2,683,807
With an increase of 10 per cent over 1910 the pole consumption for 1911 should be	2,952,187
Deduct for Idaho and Western cedar poles	500,000
1911 consumption of white cedar	2,452,187
Available stock on hand, 1911, reported	2,660,644
Add 25 per cent. to Jan. 1, 1911, report for stock not reported	355,661
Total stock on hand, 1911	3,016,305
Estimated consumption white cedar poles, 16 ft. up, 1911	2,452,187
Leaving probable stock on hand Jan. 1, 1912	564,118
Stock on hand Jan. 1, 1911	1,422,244
Less on hand Jan. 1, 1912 than Jan. 1, 1911	858,126

How Much is a Telephone Operator Worth?

Upon the payment of $500 by a suitor, S. Dubois, a Syrian watchmaker and jeweler, says a recent Nashville (Tenn.), dispatch, gave in marriage his seventeen-year-old daughter to a man she did not love.

Miss Mary Dubois, the young bride, has been employed by a telephone company and was making $250 a year when George Pharo, of Birmingham, Ala., asked her father for her hand. Dubois said his daughter was making "good money" and giving it all to him, and that if he gave her to Pharo he would lose $250 a year.

Pharo, however, offered Dubois the amount of her salary for two years if he would consent to the marriage. The amount was the old Syrian's price and today his daughter left for her Birmingham home.

Practical Hints on Railway Telephone Work

Technical Articles by J. A Kick, of the New York Central Lines, Giving Valuable Pointers on Right and Wrong Methods—Readers are invited to Contribute Their Views and Experiences Bearing on These and Other Practical Topics

The Fair Day Insulation Test All Wrong.

Are you waiting for a nice, "Sunny Sunday" to make an official insulation test? Why?

There is really nothing to it. You place the voltmeter wedge and have the distant terminal open the wires while you jot down "clear" or 1 deflection. Then what do you have?

Although such reports may make a good showing at headquarters, they are practically worthless, as they are not indicative of the true condition of the line.

Almost every circuit has places where the insulation may test to the requirements on a Sunny Sunday test, yet partially or totally break down during a light rain, dew or fog.

Defective cable strands may lie on or against cross-arms or may be defective in leaky cable boxes; bare wires may be off glass, limbs over the lead may become heavy from moisture and lie across wires; yet all these may be clear to a fair weather insulation test.

There are many districts from which wire chiefs send a periodical report of perfect insulation, but which have a serious time continuing business during wet weather.

There are other districts from which this report may mean more, as some wire chiefs are on the alert during wet weather to get tests for any defects, and by this method they are able to keep the linemen posted as to where insulation is breaking down.

Service in these latter districts will be very little affected during rains, as the tests are made when nature is assisting in developing rather than minimizing or totally hiding the faults.

Telegraph and telephone line insulation standards are based on ideal weather conditions, that is, conditions which do not exist a greater part of the time. Where it would appear difficult to fix any standard for other conditions, yet one wet weather insulation test is worth a whole year's Sunny Sunday tests.

Poor insulation in a circuit may be due to one serious fault or the cumulative effect of a large number of minor ones, which a lineman might fail to note or consider of sufficient importance to remove.

Any capable and energetic wire chief, assisted by good linemen, will anticipate and avoid serious trouble due to insulation defects by taking wet weather tests.

Trouble Due to Poor Sleeve and Solder Connections.

Haste and lack of care in making sleeve and solder connections in the line wire produce a condition which in time becomes troublesome.

One such case may be located with little difficulty, but should the trouble be due to the effect of a number of these connections, distributed over the circuit, the locating and clearing will be found to be a considerable task.

Construction specifications call for a certain number of turns, or twists, for each kind of sleeve; and to wiremen's failure to comply with these specifications one may trace some cases of loose connection in the line wire. But more often the trouble is due to indifferent work in soldering connections at terminal pins.

Upon pairing a new copper wire with an old one, on which the joints had been bridged and soldered, a very noisy circuit was found. Investigation revealed that all joints had been bridged, but in soldering the bridging wires many loose connections had been left.

The bridging wires were wound around the line wire in a closed coil and the solder applied to the outside of the coil, with the result that the bridging wire held all the solder on the outside and was poorly soldered to the line wire, or in many cases was not soldered at all.

By leaving plenty of surface of the line wire between the turns of the bridging wire, solder will take hold of both wires equally well, and a good joint will be made.

Value of Early Planning Installation in New Buildings.

The modern depot is being equipped with the very latest and best designed heating plant, lighting fixtures, etc., and these appliances are installed under very exacting specifications, with competent supervision to insure the result desired.

When a telegraph or telephone installation is to be made in one of these new buildings it is advisable to have a competent man go over the ground, consulting with the officials on whose territory, or division, the work is to be done, and making such advance plans as will insure the work being done to the satisfaction of all concerned.

A new building which is to have telegraph or telephone facilities should be provided with proper means of entry for cables and wires, battery space under the most favorable conditions, mounting panels for equipment, sufficient and proper table space, cable ducts, and other means for reaching the equipment in conformity with standard specifications.

Means for carrying cables to and through the building ought to be carefully planned, and the ducts, or conduit pipes, placed in position as the building construction advances. Provision needs to be made for future additional cables and wires, and care taken to make the original run of cable or wires renewable over or through the same route. It has been found that many old cables could not be renewed or additional cables run over or through the same route by reason of the initial installation being made without any consideration of future additions or renewals.

In considering a location for main and local batteries, the following items are not to be overlooked:

> The cells must be frequently inspected and periodically renewed. Wet cells need frequent additions to the solution as well as water for cleaning. Rapid evaporation of the solution occurs and more attention is required where cells are placed too near heating apparatus. Wet cells may freeze and burst; cells having heavy plates will frequently break from vibration. A source of light is needed for inspection and maintenance work; present needs may not be ultimate needs; the better the facilities for inspection and maintenance, the less excuse for lack of it.

Mounting panels for equipment can be very handily set into the wall if the work is done as the office is being built. and with the material and finish the same as that of the other woodwork a better general effect is secured than would be obtained otherwise.

The proper time to arrange these details is during the planning of the structure, having the building plan and specifications cover the necessary work to place the office in readiness for the installers.

In cases where these advance provisions are neglected,

especially in stone, cement and brick structures, the attempt to make an installation which will harmonize with the surroundings usually proves to be difficult, if not altogether impossible.

The means of entry to a modern depot, and the pole line structure on the station grounds are worthy of careful consideration and must be given attention at the proper time to provide sufficient facilities, of such substantial and permanent character, as to be serviceable as well as sightly.

Practical Man Considers Railway Telephone Superior to Telegraph for Dispatching Purposes.

The following letter recently appeared in the *Railway Age Gazette*:

I have read the article which appeared in the *Railway Age Gazette* of January 13, entitled "A Despatcher Who Does Not Like the Telephone," and I think that the writer should have told us more about his neighbor's experience. How many other despatchers agree with him? Our experience with the telephone shows that operators answer with more promptness than they did with the telegraph. The telephone bell can be heard farther than the telegraph, and agents whose work often calls them outside the office consequently answer the telephone when they would not hear the telegraph.

The objection made "that everybody butts in on the telephone" is, of course, an exaggeration; this fault is not due to imperfection of the telephone, but to the method of operation. It is entirely within the power of the management to make the telephone as exclusive as the telegraph, and prevent its use by anyone but the despatchers and operators, if thought best to do so. The company for which I work has thought best not to confine it exclusively to the use of the despatchers and operators; telephones have been installed in section houses at different points and also in foreman's car, so that these men can get information from the despatcher as to the movement of trains. This is unquestionably of great convenience to the maintenance of way department, but if it is carried to too great an extent, the company must understand that it consumes time; and if business is heavy, additional help will be required in the despatchers' office, or this feature of the work must be cut out.

We do not find that "everybody butts in on the line"; those who use the telephone besides operators are foremen, signal maintainers, and trainmen asking for information as to trains. We find the telephone superior to the telegraph in the following ways: Absolute freedom from fog trouble, whereas the telegraph wires are often useless for hours at a time, on account of heavy fogs from the ocean; the labor and time consumed in raising operators is practically cut out; greater speed with equal safety; much better for getting information at first hand from train and enginemen, also foremen, and others who are not operators; less friction between the despatchers and operators, as well as trainmen, with whom they do business.

One who has had a Year's Experience.

Inductive Telephoning To and From Moving Railway Trains in Great Britain.

Mr. H. von Kramer, inventor of the "Railophone," a device for wireless inductive signaling to and from moving trains, has recently been carrying on experiments in England. The latest one was conducted on a section of the Stratford-on-Avon & Midland Junction Railroad between Stratford and Kineton. A temporary telephone box was fitted up adjacent to the Stratford station, and an inaugural message was spoken into it and responded to by the Mayor of Stratford from a telephone box on the train.

Speech is transmitted by electro-magnetic induction between a large coil of wire on the coach and a stationary wire along the track. In the Stratford installation at stations and crossings, recently described in *Electrical Engineering*, the stationary wire, a bare iron wire placed in a wooden box filled with bitumen, was embedded in the railway embankment. Along the open line it was carried on short wooden poles about a foot high, close to the track. This wire was joined up with the rails which formed the return wire and completed the circuit with the telephone instruments in the signal box, or wherever it was placed. One coach of the train is fitted up with two large coils of insulated wire hung horizontally from the bottom of the coach. The transmitters used differ from the ordinary telephone transmitters only in having a lower resistance.

The system has been used only in an experimental way up to the present time. The difficulty in developing it for commercial purposes has been in eliminating disturbances from the telegraph wires installed along the tracks. Also, separate circuits are required for simultaneous transmitting and receiving, or if only a single circuit is used the transmitter and receiver must be connected alternately by means of a switch.

Mr. von Kramer expects to be able to tune the signals to and from different trains so that a train will only pick up the impulses to which its apparatus is tuned.

Mr. A. L. C. Fell, chief officer of the L. C. C. Tramways company, of London, England, has equipped the passenger station at Blackfriars Bridge with loud speaking telephones, for the saving of time when the various cars arrive.

A Story Without Words.

Who can blame the man who sent in this picture for not accompanying it with any descriptive writing? When one attempts to discuss conditions like this words fail, and the mind becomes a blank. It is only once in a dog's age that conditions as bad as this occur anywhere in the country. Whether they deserve it or not, the construction and maintenance crews charged with the duty of straightening out such a tangle as this are likely to receive a full measure of pity. The only excuse for publishing this "horrible example" is to show what may happen, and serve as a warning to build a little too strong, rather than take chances on light construction or deferred repairs.

A Construction Man's Nightmare.

The Story of a Telephone Operator

The Following Story Was Written by John Putnam, Published in Booklet Form, and Distributed by the Southern New England Telephone Co., to Interest Young Women in the Work of Operating—The Illustrations, by the Author, Add Much to the Attractiveness of the Text

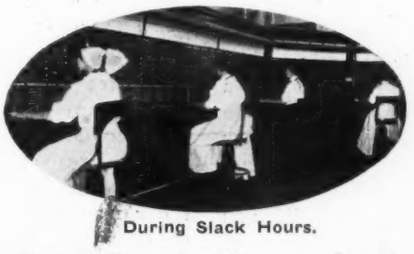
My name is Mary Hill, and I am a telephone operator, but I don't expect to be one much longer. That, however, as Mr. Kipling says, is another story, and I'll tell you all about it later.

When I left the High School, I wanted to do something to earn my clothes and help the folks, so I went to our minister and asked his advice—father and mother had made so many sacrifices to keep me in the High School that I didn't feel like asking them to bear the cost of more education. Mr. Morgan, that's our minister, said to me, "Why don't you try telephone operating? I had a letter from the telephone company the other day, saying they wanted young women to learn operating."

A Supervisor.

I found out whom to see, and the next day I went down to the telephone office and saw the instructor, as I found later, they called her. I was sort of frightened, but the instructor was so kind that I soon got over it. Well, I had to fill out a blank and tell them my height and age and if I could hear and see well, and was told to come into the school next week.

That was the first I knew they had a school, but they had, and when I went into it with some other girls I had more surprises. We had lectures and recitations, and we made connections on a practice switchboard, until finally the teacher said we could listen to the operators on the big board down stairs.



During Slack Hours.

Imagine a room as big as a public hall. Around the sides of the room extended the switchboard. It was taller than I could reach and in front of it sat fifty operators, while behind them the supervisors walked back and forth and saw that they attended to the calls and directed their work. I put on a head telephone set, as it is called, and they connected me with an operator who was making connections, and I sat right up close behind her where I could watch her. The front of the switchboard is full of holes—8,000 of them in front of every three operators. These, I learned, were called jacks, and in them were the ends of the telephone lines coming into the office. There was a shelf-like part to the switchboard, and on it were metal plugs that fitted the jacks. The plugs were connected to cords and were arranged in pairs. When a subscriber took his telephone off the hook, a little lamp lighted in front of the operator. She took up one of the plugs, put it in a hole over the light, pushed back a lever and said, "Number?" The little light then went out. I heard a man's voice say, "Two-three-four." "Two-three-four" repeated the operator, and she took up the other plug and put it into a hole numbered 234. Then she pulled the lever towards her, which, I had been taught, rang the bell on the 234 wire. Each cord had a little light in front of it and the shelf and when the subscribers were talking these lights were out. When they finished and hung up their telephones, the lights were lighted, and the operator pulled out the plugs and dropped them back in the shelf. It was very interesting.

Lecture in Operators' School.

After a time the teacher said, "This morning I am going to let you answer some calls." So I sat down and the teacher stood up back of me so I wouldn't be frightened, and waited for my first call. It came soon enough, and I put in a plug, threw over the lever and said "Number?" in a little scared voice. "Double six-four-two, ring three," said a sweet woman's voice, and I felt better. "Double six-four-two, ring three," said I boldly, and put the other plug in the right jack and pulled the lever three times. Both lights on the cords went out, so I knew they were talking all right. I made quite a lot of connections that morning and didn't make any mistakes. Pretty soon, the instructor said, "It is nearly time for the noon relief, so you can stand back here with me and see them come in."

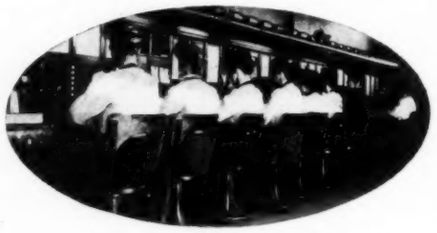
A bell rang and all the supervisors stepped back about six feet from the switchboard and stood at attention. Then entering the room I saw a long line of girls with head telephones on. They marched in single file straight to the switchboard, separated into two lines, one going left and one right until each stood behind an operator and was connected to the switchboard with her. Then another bell rang and the seated operators slid out at the right side of their chairs, and the incoming operators slipped into the chairs from the left, and went right to work.

Information Operators.

This, as I afterwards found out, was always done in an orderly way, so that the subscribers would not notice any change in their service because the operators were changed.

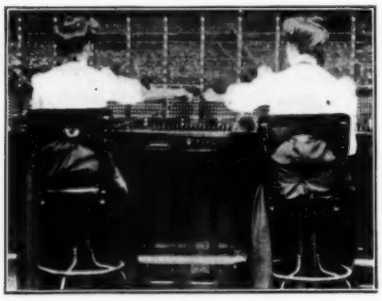
I fell into line with the girls going out and found in the lunch room a matron who made and served coffee for us to have with our lunch. There was a locker room with a separate locker for each operator, and a rest or sitting room with a library containing the latest books, which we were allowed to take home. The telephone company seemed to take pretty good care of its operators.

In a few weeks I was graduated from the school and became an operator on the city switchboard. I won't tell you how I worked on the different kinds of service—flat rate, measured and pay station, and on the "B" board, for it would make my story too long. Eventually I went to school again to take the course in toll operating. Toll operators get higher pay, so that I was glad to become one. There, too, the work was more interesting, for I had to call exchanges all over the state and great cities out of the state on long distance work. Finally, I became a supervisor and directed the work of other operators.



At the Board.

One day the chief operator called me over to his desk and asked if I would like a position in a private branch exchange. It seems that the company was installing a switchboard in a large new hotel that had just been built, and wanted a good operator there who understood the work. I hated to leave the other girls, but the position was somewhat more desirable than the one I had, so a few weeks later found me at a little switchboard in the great Hotel Comptesse. I enjoyed the life in the hotel, watching people come and go, and many of the guests used the telephones, particularly long distance. There was one fine young man who traveled for a big iron firm. When in town he had much telephoning to do, and I noticed that he spent more time than necessary when paying me, but didn't think much about it, until I met him one evening at a sociable at our church. It appeared that he belonged to the same denomination that I did, and attended our church when he had to be in town over Sunday. He asked me if he might call on me and, as there seemed to be no good reason why he shouldn't, I gave him my address and the desired permission. His trips to our town then became more frequent and, after becoming acquainted with my family, he took me to the theater once in a while. In the summer we would occasionally go out to Lakeside Park and canoe on the lake. One beautiful, warm, moonlight night, as we were floating gently over the water, he laid the paddle aside and said—oh, dear, I can't tell you what he said—but, anyway, I don't expect to be a telephone operator after next June.



Helping in Disconnect.

Bureau of Standards Announces a Change in the Value of the International Volt.

A short time ago the Bureau of Standards adopted a new value for the electromotive force of the Weston normal cell, namely:

$$E = 1.01830 \text{ international volts at } 20^\circ \text{ C.}$$

This is equivalent to an increase of about 0.08 of one per cent in the value of the international volt. The change will affect to a slight extent all measurements of electric current, electromotive force, and power, and will in some cases require slight changes in electrical measuring instruments. Some little inconvenience at least will thus be caused. The necessity for the change and the consequences of it are fully explained in a bulletin of the Bureau of Standards, Washington, D. C.

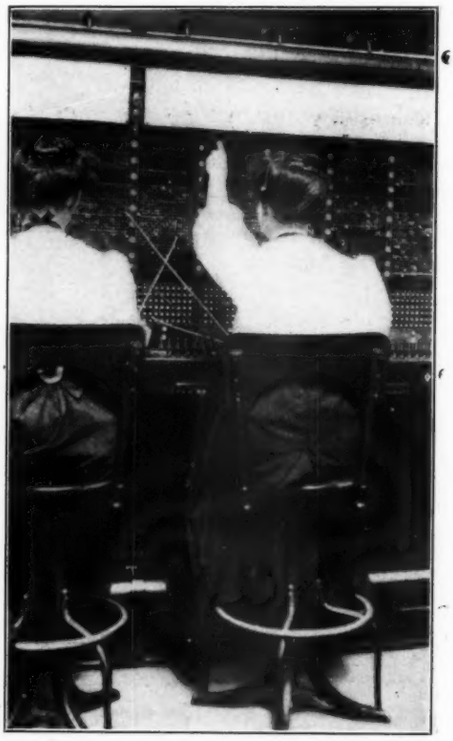
The International Electrical Congress, which met in Chicago in 1893, was composed of delegates from the United States, Canada, Great Britain, France, Germany, Italy, Austria, Switzerland, Sweden and Mexico. In addition to adopting formal definitions for the principal electrical units of measure the congress fixed the numerical magnitudes of the three fundamental units which enter in Ohm's law, and which were designated as the *international ohm*, the *international ampere*, and the *international volt*, respectively. These numerical values are given in the following definitions:

DEFINITIONS BY THE CHICAGO CONGRESS.

The *international ohm*, "which is based upon the ohm equal to 10^9 units of resistance of the cgs system of electromagnetic units, is represented by the resistance offered to an unvarying electric current by a column of mercury at the temperature of melting ice, 14.4521 grams in mass, of a constant cross-sectional area and of the length of 106.3 cm."

The *international ampere* "is one-tenth of the unit of current of the cgs system of electromagnetic units, and is represented sufficiently well for practical use by the unvarying current, which, when passed through a solution of nitrate of silver in water and in accordance with the accompanying specifications, deposits silver at the rate of 0.001118 of a gram per second."

The *international volt* "is the electromotive force that, steadily applied to a conductor whose resistance is one international ohm, will produce a current of one international ampere, and which is represented sufficiently well for practical use by $\frac{1000}{1434}$ of the electromotive force between the poles of the voltaic cell, known as Clark's cell, at a temperature of 15° C."



Team Work in Answering.

It will be noticed that the method of fixing the values of these three fundamental quantities is not uniform. The international ohm is based upon, but is not said to be equal to, 10^9 cgs units of resistance. It is, however, represented by the re-

sistance of a column of mercury of definite length and mass. The international ampere, on the contrary, *is* one-tenth of the unit of current of the cgs system of electromagnetic units, and is represented *sufficiently well for practical use* by the current which deposits a certain mass of silver per second under specified circumstances. The international volt is the electromotive force which will cause an ampere to flow through an ohm, and is represented *sufficiently well for practical use* by a certain fractional part of the unit of a Clark cell. Thus the international ohm is fixed by the resistance of a mercury column, and the international ampere by taking one-tenth of a cgs unit of current, and the international volt by means of the ohm and ampere. The figures for the mass of silver deposited per second by an ampere and the value of the volt in terms of a Clark cell were meant to be the equivalent of these values, as nearly as they were known at the time.

In the five years that intervened between the Chicago congress and the adoption by Germany of legal definitions for the electrical units it was shown by new experiments that the value assigned to the emf of the Clark cell was probably nearly a tenth of one per cent too large. Accordingly, a smaller and more nearly correct value was chosen by Germany, namely, 1.4328 instead of 1.434 volts, at 15°.

Divergences in the Definitions of the Units.

In all countries except Germany, the first definition of the ampere is that it is one-tenth of the cgs unit in the electromagnetic system, the value of which is determined by measurements with an absolute current balance of electrodynamometer. Precision measurements with such instruments are very difficult, and until recently have not been made with sufficient accuracy to fix with certainty the fourth decimal figure in the value of the standard cell. The second definition of the ampere, in terms of the mass of silver deposited per second in a silver voltameter, has not been employed in practice to any extent for the reason that different observers obtained different quantities of silver, according to the details of the method followed in carrying out the work. A voltameter in which filter paper was employed almost invariably gave an appreciably heavier deposit than one using a porous cup between the anode and cathode, and yet no satisfactory reason could be given for such excess of weight of the silver deposited. Whether the deposit was too heavy with the filter paper or too light without it was not definitely known; recent investigations at the Bureau of Standards, however, have shown that the filter paper causes chemical changes in the electrolyte which give rise to an excessive deposit of silver. The official specifications of most countries required the use of filter paper.

Passing From the Clark to the Weston Cell.

Work done since the Chicago Congress, particularly in recent years, at the national standardizing institutions of England, Germany, France, and America, has shown that the Weston cell possesses some advantages over the Clark cell, and at the London International Electrical Congress of 1908 the Weston cell was officially adopted in place of the Clark cell as the standard of electromotive force. In the improvement of the Clark and Weston cells, which took place in the course of the fifteen years between the Chicago and London congress, largely through the improved methods of preparing the mercurous sulphate, the electromotive force of both cells changed slightly. At the Bureau of Standards an attempt was made to maintain the volt as nearly constant as possible, and the newer cells therefore had to be given a slightly different value from the old ones. Hence arose a slight discrepancy between the values employed in the United States and in Great Britain and some other countries, though not as great as the difference between Germany and Austria on the one hand and America, Great Britain, and France, etc., on the other.

These differences were not large enough to be important from a commercial point of view, but they were appreciable in precision measurements, and were more or less embarrassing when certain kinds of electrical instruments made in one country were used in another.

At a conference held in London in 1908, new definitions were adopted, in which a distinction was made between the *ohm* and the *international ohm*, and so for the other units. That is, the *ohm* is 10^9 cgs units of resistance, whereas the *international ohm* is the resistance of a specified column of mercury. Following are definitions, adopted by the London Conference, of the four fundamental electrical units.

London Conference Definitions of Fundamental Units.

These fundamental units are:

1. The Ohm, the unit of electric resistance, which has the value of 1,000,000,000 (10^9) in terms of the centimeter and the second;

2. The Ampere, the unit of electric current, which has the value of one-tenth (0.1) in terms of the centimeter, gram, and second;

3. The Volt, the unit of electromotive force, which has the value of 100,000,000 (10^8) in terms of the centimeter, gram, and second;

4. The Watt, the unit of power, which has the value 10,000,000 (10^7) in terms of the centimeter, the gram and the second.

As a system of units representing the above and sufficiently near for the purpose of electrical measurements, and as a basis for legislation, the conference recommended the adoption of the international ohm, the international ampere, the international volt, and the international watt, defined as follows:

1. The *International Ohm* is the resistance offered to an unvarying electric current by a column of mercury at the temperature of melting ice, 14.4521 grams in mass, of a constant cross-sectional area and of a length of 106.300 centimeters.

2. The *International Ampere* is the unvarying electric current which, when passed through a solution of nitrate of silver in water, deposits silver at the rate of 0.00111800 of a gram per second.

3. The *International Volt* is the electrical pressure which, when steadily applied to a conductor the resistance of which is one international ohm will produce a current of one international ampere.

4. The *International Watt* is the energy expended per second by an unvarying electric current of one international ampere under an electric pressure of one international volt.

The details of the procedure for realizing the international ohm from the resistance of the specified column of mercury and of realizing the international ampere from the silver voltameter were given in accompanying specifications, except that the specifications for the silver voltameter formulated at the London Conference were very inadequate. The reason for this was that the experience of those who had done most work in recent years with the silver voltameter was so diverse that agreement could not be reached as to the best procedure. It was illogical to specify the precise amount of silver deposited by an ampere before the specifications were agreed upon, as it was possible that when the voltameter was better understood and the best procedure was determined that the number chosen would be found not to be as nearly correct as is desirable. But a majority of the delegates felt that the change would be slight at the most and preferred to specify the round number (0.00111800 gram per second) that had been previously used rather than some odd figure that might be more exact.

Having chosen the old figures to express the value of the international ohm and the international ampere, it remained to fix the specifications of the Weston normal cell and to adopt a value for the electromotive force in terms of the international volt, so that it should be consistent with the values of the two primary units.

In order that the specifications of the silver voltameter might be completed as speedily as possible and a more accurate value determined for the Weston normal cell, the conference appointed an International Committee of Electrical Units and Standards which was authorized to take up this work. It was arranged that a joint investigation should be carried out at the Bureau of Standards by representatives of that institution, together with one delegate from the Physikalisch-Technische Reichsanstalt, Berlin, one from the National Physcial Laboratory, London, and one from the Laboratoire Central d'Electricité, Paris. The European delegates as appointed by the directors of the three above-named institutions, were Prof. W. Jaeger, Prof. F. E. Smith, and Prof. F. Laporte. The representatives of the Bureau of Standards were Dr. E. B. Rosa and Dr. F. A. Wolff.

In addition to the work on standard cells and the silver voltameter, a comparison was made of the resistance standards of the several national standardizing institutions which showed a very close agreement.

The first result of this international co-operative investigation was to show that the electromotive force of the Weston normal cell derived from the international ohm and the international ampere according to the resolutions of the London Conference is, within one part in 10,000,

$$E = 1.01830 \text{ international volts at } 20^\circ \text{ C.}$$

The members of the special technical committee unanimously recommended that this value [1] be adopted.

VALUES HEREFORE IN USE.

The following values for the Weston normal cell have been in use up to the present time in the various countries:

In the United States 1.0189 international volts at 25° equivalent to 1.019126 international volts at 20°, in Germany 1.0186 international volts at 20°, in Great Britain [2] 1.0184 international volts at 20°.

As a consequence of the different values used for Weston cell, both the volt and the ampere as used in the various countries have been slightly different, for precise measurements of electric current have nearly always been by means of standard resistances and standard cells. The watt has differed twice as much as the volt or ampere. Under the new arrangement these units will be precisely the same in the different countries.

Weston portable unsaturated cells, as supplied by the Weston Electrical Instrument Company, as well as the saturated Weston normal cells, will require a correction of 8 units in the fourth decimal place (or 85 in the fifth decimal place) to reduce to the new basis. Thus a cell having an electromotive force of 1.0192 becomes 1.01835 on the new basis. Since a given voltage is expressed by a smaller number, *the new unit is larger than the old.* In the same way a current expressed as 1.0000 ampere on the old basis is 0.9992 ampere on the new. The watt is altered twice as much as the ampere and volt; that is, 0.16 per cent, 50 watts on the old basis being 49.92 watts on the new. A 16-candlepower lamp burning at 3.05 watts per candle on the old basis takes 48.80 watts. On the new basis the same current will be rated as furnishing 48.72 watts, and the lamp taking therefore 3.045 watts per candle. The difference here is of course insignificant.

Arrangements for Annual Convention of A. I. E. E. at Chicago.

Headquarters for the annual convention of the American Institute of Electrical Engineers this year will be at the new Hotel Sherman, Chicago. It is set for June 26 to 30.

The Meetings and Papers Committee has arranged an attractive program of technical papers on a wide variety of subjects. President Jackson has appointed the following Convention Committee, which will have charge of the local arrangements:

Messrs. Louis A. Ferguson, chairman; W. L. Abbott, B. J. Arnold, H. M. Byllesby, W. L. Campbell, T. P. Gaylord, W. B. Jackson, J. W. Johnson, John D. Nies, W. P. Sidley, B. E. Sunny, Fay Woodmansee, P. B. Woodworth and J. G. Wray.

Every effort will be made to make the convention profitable and interesting to the members and their guests, and a large attendance is anticipated.

Further details regarding program, transportation arrangements, etc., will be published by the May and June *Proceedings.*

The Pacific Coast Convention of the A. I. E. E.

Reports of the Los Angeles convention of the American Institute of Electrical Engineers, which opened April 25 at the Hotel Alexandria, Los Angeles, indicate that it was a remarkably pleasant and successful meeting, which will undoubtedly have a great influence upon electrical development throughout the entire coast country.

Mr. J. E. MacDonald, chairman of the Los Angeles section, called the first meeting to order. He introduced Mr. Ralph D. Mershon as temporary chairman. Papers and discussions were presented on various phases of power transmission and electrical furnaces. A mathematical paper on "Ciscoidal Oscillations," prepared by Mr. G. A. Campbell, research engineer of the A. T. & T. Co., New York, was read by title. His paper was published in the April proceedings of the Institute.

Temporary Chairman Kempster B. Miller, who presided at this session, expressed his belief that this paper is classic and will be of great value in future telephone development. Papers by C. S. Winston and E. E. Clement, which have been published in abstract in TELEPHONY, and appeared in the April proceedings of the Institute, were read by the authors. A paper by Mr. S. C. Brown, on "Some Recent Developments in Railway Telephony," was also read by the author in abstract and supplemented by extended descriptions of details.

There was an interesting discussion of the telephone papers which will appear in abstract in TELEPHONY after its publication in the Institute proceedings.

The engineers present throughly enjoyed the unique and admirable entertainment features provided by the committee, including a wonderful lunch, to which ample justice was done.

Lawyers and Real Estate Men Subject to Business Rate In Nebraska.

The Railroad Commission of Nebraska, on application of the Farmers' & Merchants Telephone Co., of Alma, has ruled that the company may substitute the regular business rate for a special lower rate formerly given to lawyers and real estate dealers. The commission further says:

"Every telephone company doing business in this state under normal conditions, is entitled to a rate, so long as the same is not unreasonable, that will provide a fair and reasonable return upon the actual value of its physical property.

"Application for increase of the rate for business telephones in the town of Orleans, to conform to the rate charged business men for a like service in the adjoining town of Alma, is, in addition to uniformity, within the rule announced."

The final clause of this decision permits the company to increase its rates at Orleans from $1.50 to $2 per month for business telephones.

THE PREMIER ELECTRIC CO. has moved its offices from 519-521 West Van Buren street to 4032-4042 West Ravenswood Park, Chicago.

The Telepathy Telephone Co., Limited.

THE business of the Telepathy Telephone Co., Limited, is hereby launched upon the dependable ozone, without poles, wires, central stations, conduits or red tape. The only office fixtures are those in the library of the writer and consist of a dog-eared dictionary, a typewriter that limps, and a quart or two of current clippings on subjects ranging from "How to Make Apple Butter" to "Pip in Sheep"—or is it "Chickens"?

The purpose of the Telepathy Telephone Co., Limited, is to accelerate the sympathetic affection of one mind by the thoughts, feelings or emotions of another at a distance, without communication through the ordinary channels such as the ante-date telephone, the telegraph, pneumatic tube or via the back-yard fence!

For instance, if a tired business man makes up his mind tomorrow afternoon that he will go to the ball game, he telepaphones to his wife much after this fashion:

"Oh, Mary Jane, Mary Jane, Mary Jane, MARY JANE, I say—your hubby is all worked out. Oh, absolutely done for, Mary Jane, and he has decided to go to the ball game and stay down town to dinner! Yes, stay down town to dinner! Am I getting your telepathic wave, all right? Do you hear me, oh, Mary Jane? If so—listen! I say, I am going to the ball game and will have a night off with the boys!"

Having thus delivered himself of his message, the tired business man leans further back in his chair, puts his feet on the desk and ringing for his stenographer, says:

"Here, Miss Patterson, answer these letters just as I would; I've got to go out on important business!"

And he goes to the ball game and other things.

Now, while the tired business man is sending his message, Mary Jane is rocking gently to and fro in front of her kalsomining glass while she rouges skilfully. She is about to dab a little more of the kalsomine on the tip of her nose when the ether around her aura is disturbed. The ozone becomes slightly agitated and the tiny tinkle of a brain cell colliding with a winging sound wave is distinctly heard. In a second Mary Jane is all attention. Then she gets the message, sniffs and replies:

"Go ahead, John, and enjoy yourself. Your wife is in the country—but she's coming in to attend a matinee and a bridge party and a dinner at Martoni's. So sorry you have to work like that. Buzz! Buzz!" and she rings off—er, that is, she breaks the connection.

Isn't this slick business? No "central" to keep you waiting while she clears the line, no dispute over tolls, no time limit, nobody on the line, no machinery to get out of order or buzz-fuzz to get on the circuit. Everything works just too lovely—and all it costs is $5 for a special course of instruction in telepathy. Own your own—that's a good catch-line—telepathic telephone line. When not in use, you don't have to store it in the smoke house or plant it in the garden—just go away and forget it. It's all in knowing how. The Bell company hasn't a single iota of a claim on my system. I invented this out of a desire to give the world something for almost nothing and make myself rich at the same time! It's the coming means of marital discourse. In these parlous days a married man sees so little of his wife as almost to be unable to pick her out in a crowd. The demands of modern business and up-to-date club life are simply unbelievable. But now comes my Telepathy Telephone Co., Limited, and connects man and wife by wireless ether, puts them into juxtaposition, as it were, with a simple rising inflection of the voice. Once the plan is mastered a man need never go home unless the lawn demands mowing. He can do all his family confidences by telepaphone—and do it NOW!

For further particulars, write.

Content.

Jud Lewis, of the *Houston Post,* has written a very convincing bit about contentment. Makes a man think of David Grayson. The last line of Jud's poem ends with: "And a friend to sit still at your side." Here's another version, old chap. Try it.

"A box of cigars close at hand,
And a porch railing near for your feet,
And the dusk settling over the land,
And a bird in the dusk crooning sweet.
And the world is worth having and good,
And trouble and sorrow fly wide,
A chair and a smoke—with a girl on the line
And a telephone close by your side!"

A telephone girl in an office not a thousand miles from where I live went to a dance the other evening and was asked by a bashful young fellow to waltz. After they had been around the hall twice the girl broke the connection by the perturbed remark: "Are you dancing or trying to wrestle with me? If the latter, come out into the hall and I'll throw you before you can say Jack Robinson!"

Practical Letters from the Readers

Practical Man Denounces Free County Service.

Complying with your request for arguments for or against free county service, I think I will take a hand. Of all the foolish things courted, and permitted in the telephone field this evil, as you term it, is the greatest.

In the first place the name of "free county service" is incorrect and misleading. It is not free, but simply unlimited service paid for in some manner. Sometimes the price is as low as one dollar per year, and ranges from this price to as much as $1.50 per month. In either case it is unprofitable and is an absurdity from a business viewpoint.

All of the rural organizations go to pieces on this rock, sooner or later, and in many cases the evil destroys the larger unit company giving, or selling the county service to the smaller organizations, or to its own subscribers. If it does not completely destroy the company, it certainly does the net profit, or revenue, and thus prevents the otherwise proper and profitable growth of such company, making dividends a matter entirely out of the question.

I do not believe that if this evil were properly placed before the subscribers, and especially those who have invested their money in the business, there would be any necessity for giving unlimited service between several and different exchanges. Unlimited service between subscribers connected with the same switchboard is bad enough, and should be corrected in many places, but under any circumstances, that kind of service should end right there. When it is necessary to trunk calls between exchanges there should be a charge of some kind, and in order that the subscriber may willingly agree to this, it should not only be fully and personally explained to him, but he should be permitted to share the tolls picked up at his telephone.

I know of many cases where a new organization started off with the determination to confine itself to a certain area, and to charge for all other kinds of service, and to divide the profit as a dividend. So long as this plan was adhered to all went well, but in all cases where this rule was abandoned every one of them is saying "What is the matter? We cannot pay expenses, or do anything necessary, unless more and more money is put into the concern." They do not seem to understand that with a few lines covering a certain territory there was always money in the treasury, and when there were many more, and the gross revenue had been multiplied several times, they were constantly in debt.

If unlimited county, or any other unlimited service could be confined to the subscriber, and he would use the service within reasonable limits, perhaps the evil would not be so great; but when the bulk of such service is abused by both subscribers and non-subscribers, there must be some remedy found. The evil is growing, and it might as well be stopped now as later. When it is understood that the usual highest rate charged—$18 per year—is in reality but 5 cents per day, it does not require much argument to show most people how many calls over the county cannot but bring a loss. No matter what the investment may be, this should only tend to bring about a revenue in return, and has no bearing whatever on the amount of service given, except, of course, by those few who look at the matter from a purely selfish interest, to the disadvantage and loss of the many. If there are subscribers anywhere who object to a proper return for investment, such should be dropped. Most such people have invested perhaps not more than $50. This amount can be borrowed from the bank for $3 per annum, and the borrower still have the accumulated security of the property produced by the $50. Why then listen to some blatant investor who puts in his $50 for no other reason than that he fully expects to reap the whole $50 in return, when he would be willing to give it to the bank, or on any other kind of security, for much less than one-tenth.

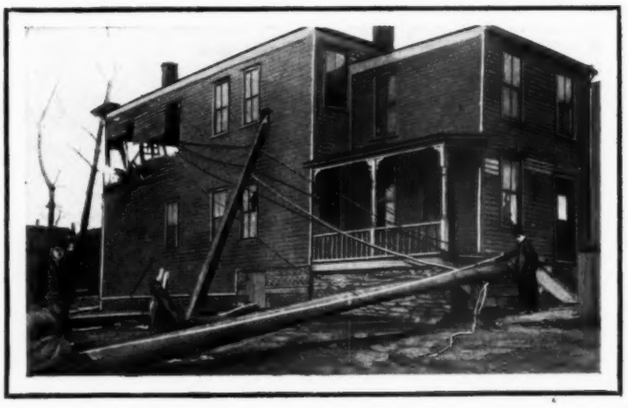
This figures, too, where rates are higher, but as a rule where few subscribers are investors.

I hope this question will be fully discussed, because it means so much to the Independents—much more than the much talked of physical connection. The only reason this question of unlimited service is not taken up to a finish is because the opposing companies are afraid of each other, and the people in their ignorance use the cudgel for all it is worth. If the physical connection idea prevails, it will not be long before we see the little fish disappearing down the throat of bigger fish; and as this process continues you will see following in the rear and disappearing in a vapor the word "unlimited."

I will be glad to follow the argument, and in order not to waste your time, and mine, I will wait to hear some of the argument in favor of what you call "free county service."

Telephone System Wrecked by Engine.

The service of the Girard Telephone Co., Girard, Ohio, was wrecked recently through an unusual accident. A railroad wrecking engine, which was rushing through the town in the night, was equipped with a large derrick, the long boom of which caught up the wires and cables of the telephone company where they crossed the railroad's right-of-way. Before the engine could be stopped, nine poles were torn down and bumped against houses, many windows in buildings near the track were smashed, and one corner of the house shown in the illustration was wrecked by the cable. Three of the poles were stopped by this house. Farther down the yards, the telephone cable wrapped itself around one of the railroad towers. —*Popular Mechanics.*



Scene of an Unusual Accident.

Arguments in Favor of Joint Pole Lines.

A paper presented at the third annual meeting of the Engineering Society of Wisconsin, by Mr. O. M. Rau, chief electrician of the Milwaukee Electric Railway & Light Co., presented four arguments in favor of joint pole lines as follows: saving in initial cost of construction; saving in cost of maintenance; avoiding ill will of the public, and improving the appearance of the streets.

Legal Cases and Decisions

By A. H. McMillan

Runaway Team and Guy Wire.

Our company is doing business under a charter granted by the state of Kansas, and we have lines only in this state. A few weeks since a man and his wife were driving in a lumber wagon on a public highway when their team became frightened and ran to one side of the highway. The wagon wheels struck a down guy strand and the occupants were thrown out and the woman was injured. The pole to which the guy strand was fastened was set in the line fence, or perhaps even on private property, and the guy wire extended from the pole and entered the earth 4 feet 4 inches from the base of the pole. Are we, according to the laws of Kansas, responsible to the injured parties? The object of the guy wire was to hold a single wire lead leading from the pole.

You ought not to be held liable to the injured parties in the case you mention. According to the laws of the state you had a right to have your telephone poles at the side of the highway. Section 1342 of the general statutes of Kansas for 1901 provides that telegraph companies may set their poles, etc., along, upon or across any of the public roads, streets and waters of the state so as not to incommode the public in the use of them. Section 1252 grants telephone companies the same powers as telegraph companies. As you have a right to have your poles in the highway you also have the right to have guy strands at the side of the highway to support your poles.

The cause of the accident was the running away of the team and not the existence of your guy wire. A highway is made for teams under control and not such as run away.

Poles on Private Property.

I would like to know the law on the following: We have a mile of poles with three wires running on the section line. There has been no road on this section line. The poles were put there with no objection from owners of land. Since then a party who has bought the land on both sides of the lines demands of us to remove the poles, as he wants to plow up the line and put his fields in one. Our lines extend some six miles beyond this place. What is the Nebraska law on this? Can he make us remove poles? We also want to run another wire on these poles.

The most that can be said for the action of the property owner in not objecting when you erected your pole line is that he gave you a license to use his land. A license is revocable at any time, even though acted upon. We, therefore, think that the present owner of the land can require you to move your line if he wishes. The fact of the poles standing on the section line does not affect the case. The section line is merely an imaginary one and the land over which it is supposed to run is, in this case, private property.

It was formerly held that after money is expended and a line actually built in reliance upon a verbal license, such license became irrevocable. Wilson vs. Chalfant, 15 Ohio, 248; 45 Am. Dec., 574; Rerick vs. Kern (Pa.), 14 Serg. & R., 267; 16 A. D., 497. This doctrine has recently been overruled in Ohio. Yeager vs. Tuning, 89 N. E., 657. There are some states in which it never applied, as Connecticut, Maryland, Rhode Island and Massachusetts. Prince vs. Cose, 10 Conn., 375; Hayes vs. Richardson, 1 G. & J., 366; Foster vs. Browning, 4 R. I., 47; Pomeroy vs. Stevens, 11 Metc., 244. We, therefore, think this doctrine cannot be recognized as the law anywhere.

Distance Between Light and Telephone Wires.

Will you let us know what is the law regarding the distance a light company stringing or changing wires must keep from a telephone line running parallel or across? Electric light wires must ke kept such a distance from telephone wires running parallel or across them as not to interfere with the operation of a telephone line or endanger the public. There is no specific distance required unless by a city ordinance. The rule is that induction between parallel lines is inversely proportioned to the square of the distance between them. Rocky Mt. Bell Tel. Co. vs. Salt Lake City R. R. Co., 3 Am. Elec. Cases, 356.

The distance between wires should be greater in cities and towns than in the country. The reason for this is the greater density of population and greater number of wires in cities and towns. In the country a distance of 10 inches between the nearest wires of two companies is held to be sufficient. In town a distance of 4 feet between wires on the respective companies' poles has been required. Northern Tel. Co. vs. Iowa Tel. Co., 98 N. W., 113.

Trimming Trees that Overhang the Highway.

I would be pleased to have you pass on the following condition under the Kentucky laws, where property owners along public highways have trees sitting inside of their fences the limbs of said trees overhanging the public highway so as to interfere with the telephone company's wires on the same side of the road. The telephone company possibly has no right of way from the abutting land owners, but is operating by right under a franchise granted by the fiscal court of the same county that it is operating in. Under such conditions would the telephone company have a right to trim said branches of trees at a point over said property owner's fence?

Also if you have any decisions along this line of the courts of Kentucky, would be pleased to know them.

A late case from Kentucky on the question you ask is Nachand vs. Cumberland Telephone & Telegraph Co., 120 S. W., 319, which was reviewed in the issue of TELEPHONY for January 7, 1911. In that case a written contract was made by the land owner, giving the company the right to do the necessary trimming of trees to clear wires 18 inches from the line of the property. The land owner failed to prove that the trees trimmed were not before the trimming an obstruction to the company's line, or that they were trimmed more than was necessary to clear the company's wires the specified distance. For these reasons a judgment for the company was affirmed.

This case is not directly in point on the question you ask. The courts of Kentucky would undoubtedly follow the principles of this subject laid down by the courts of other states. According to such principles the telephone company would have a right to trim from trees standing on the land of abutting owners such branches as overhang the highway and interfere with the telephone company's wires. A case on the subject reviewing numerous authorities is Wyant vs. Central Telephone Co., 123 Mich., 51. This case holds that a telephone company authorized to erect its line along a country highway has the right to cut away obstructive branches of trees growing on adjoining property to admit the free passage of the wires without first giving the abutting proprietor an opportunity to do so, but it will be answerable to him for any unnecessary, improper or excessive cutting.

New Franchise Does Not Change Old Contracts.

We have recently installed a new telephone exchange in this city, and under our new franchise we have a right to advance rentals of telephones 50 cents each per month. Our old rates were $1 for residence and $2 for business, and the new rate will be $1.50 for residence and $2.50 for business. We have gotten up new contracts. I enclose a sample.

Some of our subscribers have signed former contracts and some have not. Now we are endeavoring to have this new contract signed for the new service by every one of our subscribers, and we are meeting with some objections. Some say they have signed a contract two or three years ago and some say they will not sign a contract for a telephone at any rate, and a good many signed without any objections.

Now could we deny service to those who refuse to sign contracts, at our new rate, or remove their telephones, the telephones having been installed and the subscriber getting service?

The new franchise granting you the right to increase your rentals does not give you the right to change any existing contract. The subscribers who signed your former contracts will have the right to service at the rates provided for in such contracts unless they voluntarily surrender them. Your only way to meet the situation is to induce them to give up their old contracts and take new contracts at the new rate. In other words, you cannot deny service to those who have your old contracts and refuse to sign new ones.

Additional Trouble with High Tension Wires.

I wrote you some time ago about the trouble we had with the high tension power plant here. In the answer which you kindly published, you asked me to tell you of further trouble. Well, we sure got it. These people now have two cable leads of three phase each. Each cable is 17 strands of No. 12 copper, one a pole line and the new one a tower line. At 8 p. m., March 30, an insulator cracked on the pole line and that pole burned down, leaving them only the one circuit. At 8 p. m. their tower circuit, carrying 60,000 volts, got a ground and started to do things to us. They only having the one circuit left, let it go until it burned the ground off and cleared itself, which took 10 minutes. Every one of our 150 party line drops were ringing until they burned open.

It set one house afire; again, melted a telephone in an other, and of course put all our fuses, heat coils and carbons out of commission.

We have three lines in the power house with arresters on the inside wall. The chief electrician told me that a stream of fire jumped from a steel girder 4½ feet from our arresters and held there until the trouble cleared. Wish you could see the collection of chips, coils, fuses and other junk I have here; some of them are really good.

The above is certainly a case for vigorous action on the part of the telephone company to protect itself. We advise consulting local counsel. Chapter 11 of McMillan on Telephone Law may furnish suggestions.

Changes of Equipment Made Necessary by Electric Light

An electric light company is coming into town and will compel a change in telephone equipment which will be more or less expensive. Among other things we will have to install a different type of protector at substations and probably move some wiring and install cable. Is there any way for us to make the electric light company to bear part of the burden?

A telephone company has the right to be protected from interference by the heavily charged wires of electric light companies. It can, by injunction, compel the electric light company to keep its wires far enough away to be perfectly safe. We would suggest that you take the matter up with the electric light people in advance, tell them the situation and explain to them that you will protect your rights by injunction unless they will agree to recompense you for part of your additional expense. For the rights of companies under these circumstances, see Chapter 11 of McMillan on Telephone Law.

Sufficient Clearance from Electric Light Company.

We wish to recite to you for your advice and consideration conditions which we are about to face in the city of ——, Texas, with the electric light company changing its system from 220 D. C. to 2,200 A. C.

Our plant was built during 1906, when the electric light company was carrying but 220 D. C. and it, at that time, so far as we understand, had no intention of increasing its voltage and our construction was made accordingly.

We would like to know whether you can cite us a similar case in Texas, and whether we have the right to compel the light company to give us a sufficient clearance that our wires may not be interfered with by its change and increase of voltage.

There has been no similar case decided in Texas so far as we know. The general principles of law would govern in the state, however, and by them you would have the right to compel the electric light company to give you sufficient clearance so as to avoid interference and induction. For cases from other states see Nebraska Telephone Co. v. York Lighting Co., 27 Neb. 284; 3 Am. Elec. Cas. 364; Northwestern Exchange Telephone Co. v. Twin City Telephone Co. (Minn.), 95 N. W. 460; Chicago Telephone Co. v. Northwestern Telephone Co. (Ill.), 65 N. E. 329.

Does Tenant Need Landlord's Consent to Install?

At St. Paul, Minn., a new legal question has arisen involving the installation of a telephone by a tenant without his landlord's consent. The tenant lives upstairs in a duplex flat building, and the landlord occupies the lower flat.

When the lease was made, the tenant agreed with the landlord to use the telephone in common by the aid of an extension telephone in the upper flat. He also paid half the telephone bill. Relations became strained and the tenant decided that he wanted a private line and ordered one in. This abolished the extension telephone and put the landlord on the books of the telephone company as a full subscriber.

The owner, it is asserted, cut the wires twice and the tenant rebelled. When the tenant complained, there was a doubt in the minds of the telephone authorities whether the owner did not have a perfect right to cut the wires. A third connection has been made and the tenant expects that the wire will be cut again.

Legal opinion seems to be that a tenant is entitled to all the public conveniences he is willing to pay for regardless of his landlord's wishes or permission. It is even thought that the landlord is liable for cutting the line.

Free Telephone in Railroad Depot.

We are operating a local telephone plant here under a twenty-year franchise granted to us by the city. When the plant was built three years ago, there was another company also operating a telephone plant here. Our company could not get a telephone in the depot unless it placed it there free. Our company also signed a twenty-year contract with the company to give it free service. Now can we break that contract and compel the railroad to pay for service at the established rate? Are we not violating the law in giving them free service?

So far as the facts can be inferred from your statement, your contract with the railroad company was a mere gift or promise without consideration. You therefore can refuse to continue that contract at any time. The giving of free service is now a violation of the anti-trust laws of Texas.

Prizes to Operators Increase Efficiency.

The Southeast Missouri (Independent) Telephone Co., of Charleston, Mo., recently inaugurated a plan to increase the efficiency of its service. This is the offering of prizes each month to the operators. The prizes consist of a ten-pound box of candy and a four-pound box, in addition to which the various divisions will compete for a banner, which goes each month to the winning division. E. C. Blomeyer, traffic manager, states that the scheme resulted in an immediate betterment, the percentage of efficiency, which had been averaging between 65 and 70, having jumped to 95.

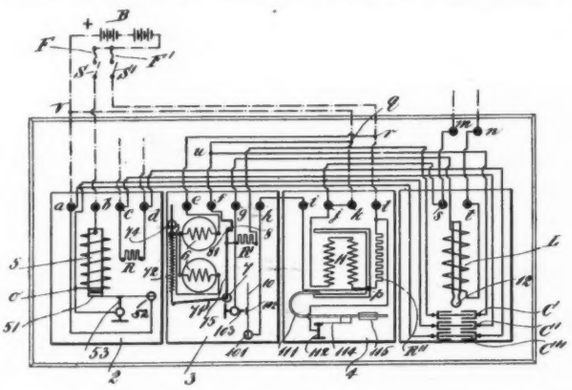
From the Patent Office

Max W. Zabel

Telephone Signaling System.

E. M. Tormin, Newton Center, Mass., patent 990,685, Apr. 25, 1911, assigned to Holtzer-Cabot Electric Co., Brookline, Mass.

A central station signaling device set forth in this patent is designed to provide improved "busy" notification facilities, and also to notify the subscriber when the receiver has been

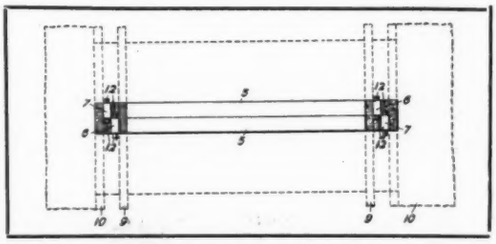


left off the switchhook. The device further includes a busy-back timer to regulate the cadence of the signals produced by the busy-back vibrator; also to provide means for regulating the strength of the current employed for the busy signal. These devices are all mounted upon a single support. The device is completely illustrated in the patent, but the drawing herein shows the circuit arrangement of the various parts, of which the howler is shown at 5. A busy-back vibrator consisting of the electromagnets 11, etc., is shown on slab 4. The timer for the busy-back vibrator is shown on the slab 3, and is operated by the electromagnets 6.

Key Space.

A. F. Dixon, Newark, N. J., and R. R. Ireland, New York, N. Y., patent 981,846, Jan. 17, 1911, assigned to Western Electric Co., New York, N. Y.

This invention contemplates the provision of key spaces 5 which have plugs 7 thereon of such size as to co-operate with rails 9 and 10, and thereby align the key spaces properly. The lugs 7 are provided with projections 12 so that they may interlock with adjoining key spaces to maintain them all in proper position. The object of the invention is to provide a suitable closure for the opening normally made



in key shelves to accommodate later installations. The present closure is of such character that portions can be readily removed to accommodate individual keys at any portion of the opening.

Telephone.

W. C. Lockwood, San Juan, Porto Rico, patent 989,856, April 18, 1911.

The invention herein is designed to amplify the transmission, and provides a new system of substation wiring. The system also contemplates a receiver having therein an induction coil with two primary windings placed lengthwise of the receiver. At each of the opposite ends of the core of this induction coil an electromagnet is placed, and the diaphragm of the receiver is under the combined action of these three electromagnetic means. The coils of the two electromagnets are connected in series, with a receiver battery, and this circuit is connected in bridge of the two primary windings of the induction coil. This triple bridge is then serially included with the transmitter and transmitter battery. The secondary winding is included with the line circuit.

Automatic Telephone System.

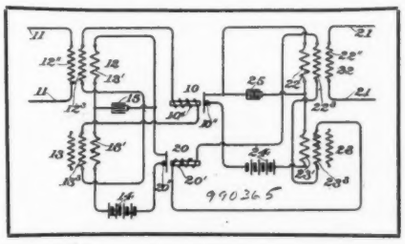
A. Alexeeff, Enseli, Persia, patent 991,260, May 2, 1911.

An automatic system claimed to be suitable for private branch enchange purposes or for use in small towns, as it can be satisfactorily used with four hundred subscribers. The system contemplates a central selecting switching station from which lines emanate to substation switching mechanisms. The substation mechanisms lead directly by means of line circuits to the various telephones of the system.

Telephone Repeater Circuit.

C. A. Kruckow, Halle-on-the-Saale, Ger., patent 990,365, Apr. 25, 1911, assigned one-half to McMeen & Miller, Chicago, Ill.

A repeater uses at 10 and 20 a special form of combined receiver and transmitter. The speech currents from line 11, for instance, pass through primary 12'' to 12^3, the induced currents of 12^3 flowing through 10' and 13^3, thus producing in 10 a variation of the resistances of 10'', which varies the current from battery 24 through primary winding 22'. The variation



in the current of 22' produces in 22'' speech currents which are transmitted over the line 21. The circuit is symmetrical and speech currents received from line 21 are repeated into line 11 in a manner symmetrical with the paths just traced. It is stated that the two repeaters are oppositely directed and neutrally connected, each with respect to the other. The special circuit herein, it is claimed, provides a separate repeater for repeating in each direction and provides neutralizing means whereby the repeater not active is restrained from exercising a deleterious effect upon the operating elements of the system.

Means for Reproducing Electrical Variations.

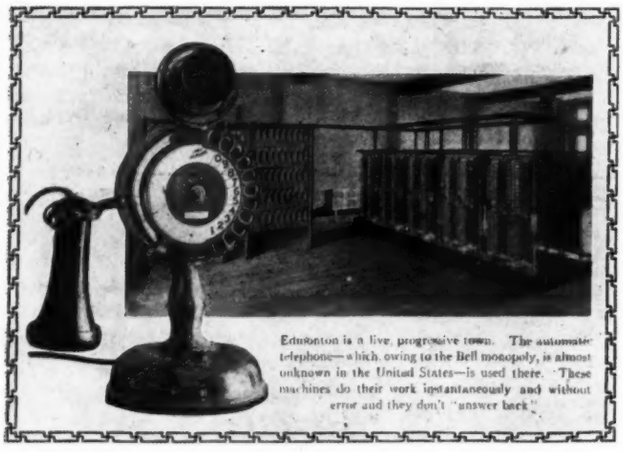
P. C. Hewitt, New York, N. Y., patent 991,304, May 2, 1911, assigned to Cooper Hewitt Electric Co., New York.

In a mercury vapor repeating system an electromagnet subject to current variations is placed adjacent to a positive electrode of a gas or vapor apparatus. This magnet causes the variation of the so-called protuberance resistance of this electrode to be large relative to any variation produced by the magnet in the vapor column resistance.

From Factory and Salesroom

Tribute to Automatic in "American Magazine."

Under the caption "A Community That Pays Its Own Bills," Albert Jay Nock is a contributor in the June issue of the *American Magazine*. Mr. Nock is dealing, in a series of articles, with the various provinces of Canada, the one in this instance being Alberta. The accompanying illustration, reproduced from his article, serves to indicate the opinion


Edmonton is a live, progressive town. The automatic telephone—which, owing to the Bell monopoly, is almost unknown in the United States—is used there. These machines do their work instantaneously and without error and they don't "answer back."

Reproduction of Half Page in "American Magazine."

of the writer and also of the people of Edmonton regarding Independent telephone service.

To be sure, Mr. Nock has wandered somewhat from the facts when he states that the automatic telephone, "owing to the Bell monopoly, is almost unknown in the United States." As a matter of fact, and as is well known to telephone men generally, the automatic is far from being unknown, being operated in competition with the "Bell monopoly" in a large and constantly increasing number of cities and towns, ranging in size from San Francisco down, and is today being operated in Chicago, where 20,000 stations will be connected by June 1. His commendation of the service, however, is none the less sincere because of his unfamiliarity with conditions in the States.

Edmonton is the first of the Canadian towns in which the Automatic Electric Co., of Chicago, installed its product. Since that municipality adopted the system a number of others have followed suit and the automatic telephone may now be considered to have proven its case and to be thoroughly established in the Dominion.

A Reliable Surety Company.

The National Surety Co. of 115 Broadway, New York City, is actively soliciting the fidelity bond business of the many telephone companies and exchanges throughout the United States. Practically all of the large telephone companies bond their managers and other employes, and many of them have been saved great losses through the fact that they were protected against the dishonesty of employes in this manner.

The National Surety Co. bonds the employes of more large corporations, perhaps, than any surety company engaged in the business, and it bonds more people than any surety company in business. The company is backed by some of the strongest interests in the world, and has an enviable record for the prompt payment of losses. The form of bond is exceedingly liberal and simple to understand and the rates are as low as those of any company.

The careful investigation and far-reaching methods in use by surety companies exert a most powerful moral effect upon all employes. The investigation made of all applicants for bonds is the means of eliminating many undesirable employes from the service, and as the National Surety Co. makes a specialty of its investigations and maintains a special department for handling all fidelity business of this kind, it is in a position to give the most efficient, prompt and satisfactory service.

The National Surety Co. has a capital of $1,500,000 and surplus of over $1,300,000, and telephone officials will find it much to their advantage to look into the matter of bonds for all employes holding positions of responsibility and trust.

Frank W. Pardee Back at Work, Much Improved in Health.

Mr. Frank W. Pardee, vice-president of the Ericsson Manufacturing Co., Buffalo, N. Y., who was compelled to give up his duties about two months ago on account of ill health, is again back in his old haunts in Buffalo, feeling in the best of health. He reports that he has a choice lot of fish stories to tell, as a result of his Southern trip. In any event TELEPHONY and his many friends in the field are glad to know that he has regained his strength and is ready to take up his duties.

The Atwater Ever-Ready Telephone Pad.

Telephone men generally will be interested in the business announcements which Mr. S. T. Atwater, of New York, is making through TELEPHONY's columns.

The Atwater memorandum pad appears to have at last filled a long-felt want as regards a durable, yet very light, attachment which matches the upright or stem of the telephone and which affords a continuous supply of writing paper as well as a means of detaching the same cleanly and quickly, with one hand, as desired.

Atwater Pad.

Furthermore, the price on this attachment has been brought down to such a figure as to make it a most attractive proposition. There is no doubt about the Atwater memorandum pad being one of the greatest conveniences which a telephone subscriber can possibly procure. This is attested by the fact that wherever the Atwater pad thus far has been introduced, people make special trips down town to buy one of them at the regular retail price of 50 cents. At the special rates which Mr. Atwater is offering telephone companies just now, enough can be made from the sales of this device to pay solicitors or collectors; or, by using them in another way and giving subscribers the benefit of the reduced prices, a long step can be taken toward pleasing patrons and popularizing service.

It is such little matters as there which count heavily in these days of close telephone competition, and Mr. Atwater's proposition accordingly will be of more than ordinary interest.

THE NATIONAL INDIA RUBBER CO., of Bristol, R. I., announces that a change has been made in the agency arrangements for the Pacific Coast, and that in future a full line of rubber-covered lamp cords, wires and cables will be carried at its branch offices at 155 New Montgomery street, San Francisco, the office being in charge of Otis & Squires.

Installations of Telephone Fire Alarm Service.

The system for furnishing fire alarm service over telephone wires, made by the Denio General Electric Co., Rochester, N. Y., is evidently giving first class satisfaction in its home town. Dr. B. B. Clark, president of the company, has been called upon to lecture before leading technical societies of Rochester and neighboring cities as a result of the public interest which has been created by the success of the system.

The company has recently issued a booklet giving a list of many prominent Rochester firms which are now using the system in connection with the telephone wires leading into the exchange of the Rochester Telephone Co., which is assisting in the development of this service, as it furnishes a valuable and profitable by-product for a telephone exchange.

One of the largest known local timber deals was made at Glasgow, Kentucky, a few days ago when the A. B. Smith Lumber Co., of Paducah, purchased all the cedar in the "Knobs," near Glasgow. The cedar will be worked into telephone poles and shingles.

The Factory Where Adjustaphones Are Made.

Telephone men who are interested in good factory management would enjoy an inspection of the plant of the Chicago Writing Machine Co., where Adjustaphones are made. The plant occupies two brick buildings, the factory two stories high, and the power plant which is one story high and contains the most modern equipment. The plant is located in the city of Galesburg, Illinois, and takes up an entire quarter of a block.

Features of the factory which appeal strongly to the telephone men are the electric welder, which makes a perfect weld in three seconds, and the presses which punch parts of the Adjustaphone from the metal. Mr. H. A. Bates, who is in charge of the plant, in order to reduce manufacturing cost materially, has designed some complicated dies. These dies were made in the Adjustaphone factory under Mr. Bate's supervision. Many people wanted the Adjustaphone in other finishes than nickel and to satisfy them a japanning oven was installed.

To do all of the work quickly and inexpensively, the company makes, as far as possible, all tools used in the manufacture of its products.

A careful watch is maintained over every detail of manufacture that the Adjustaphone may be sold at the lowest price.

New Catalog of Testing Instruments.

The Leeds & Northrup Co., 4901 Stenton avenue, Philadelphia, Pa., has just issued its catalog No. 50 for 1911, covering its valuable line of portable testing sets and cable testing apparatus. The reputation of the Leeds & Northrup apparatus for accuracy, adaptability to special needs of the telephone business, and durable construction, combined with sightly and convenient general design and high grade finish, are well known. The catalog gives a brief description of the standard testing sets made by the company, diagrams of wiring connections, prices, etc.

The company has also issued a catalog of potentiometers, in a type largely used by universities and manufacturing companies. The instrument is designed to combine the highest accuracy with the greatest sensibility for all classes of work.

Crouse-Hinds New Branch Office.

The many friends of Mr. Daniel C. Gidley will be pleased to learn that the Crouse-Hinds Co., as a reward for his long services on the road, has appointed him district manager for the New England territory. He has established headquarters in Boston, with offices at No. 201 Devonshire street.

Mr. Gidley's perfect knowledge of Crouse-Hinds products, his ability as a salesman and pleasing personality should win him a full measure of success in his advanced position.

It is reported in Sons of Jove circles that "Dan" Gidley, now that his traveling days are over, will soon become a benedict.

THE GLOBE-WERNICKE Co., Cincinnati, Ohio, has issued a booklet giving valuable information on catalog and card filing systems. It shows outfits which would save time and money for any telephone manager. Very often the catalog wanted at a particular moment is the one which was thrown into the waste basket a few days ago, or mislaid, or loaned to the wire chief who took it home with him. With a cabinet as one of the permanent fixtures of the office the right kind of information can always be obtained in a minute. The

A Portion of the Assembling Room of the Adjustaphone Plant, Showing Equipment and Work in Progress.

cabinet saves the valuable time of the executive officers, and its purchase is a real economy.

The Buffalo branch of the New York Telephone Co. has recently supplied its pay-stations in Buffalo, Rochester and other cities with handsome dark blue REMOVABLE DIRECTORY COVERS printed in white with the circle and Bell trade-mark. The covers were furnished by the Arnold Supply Co., of Milwaukee.

A New Kellogg Testing Cabinet.

The testing cabinet illustrated has been designed for use in connection with small exchanges. It affords means for making reliable tests of trouble that arises in equipment of this type. Practically the same tests can be made with this cabinet has with the Kellogg Company's more elaborate wire chief's desk.

The cabinet containing the apparatus in the testing circuit is 13½ in. high, 10 in. wide, and 6 in. deep. It is substantially made of quarter-sawed oak and has a golden oak finish. A Weston round pattern voltmeter is mounted in the front, directly above the keys. Two connectors are located below the keys, for connecting to a Wheatstone bridge.

The advantage of a compact testing cabinet of this type

Kellogg Testing Cabinet.

is that it may be mounted on the end of the switchboard section within easy reach of the subscriber's line equipment.

Tests which can be made with the testing cabinet are as follows:

1. Location of grounds on a subscriber's line.
2. Short circuits.
3. Crosses between two subscribers' lines.
4. Foreign currents.
5. Opens.
6. Cross-talk.
7. Earth currents.
8. Insulation.
9. Swinging grounds.
10. Receiver off hook.
11. Resistance of drop coils, receivers, etc.
12. Voltage of dry or storage cells.

A set of instructions, furnished with each testing cabinet, fully describes the method of making tests.

The apparatus included in the test panel consists of:

A Weston No. 24 round pattern flush type voltmeter, scale 0-50 volts, with a 10,000 ohm coil, and the necessary keys for making the tests previously outlined. The operator's telephone consists of a desk stand complete with operator's receiver, head band, cord and induction coil.

If desired, a breast plate operator's set instead of that described above, is furnished.

A flexible two-conductor testing cord and a single conductor grounding cord are provided, if the testing set is for a Kellogg switchboard. If ordered otherwise, the set is shipped without cords. Each cord is eight feet in length. With this testing cord attached to a switchboard plug, it is possible to reach any subscribers' line jack in a three-position switchboard.

If it is desirable to locate the testing cabinet in the terminal room it is only necessary to connect the cord connectors of the testing cabinet with the cord fasteners of any vacant cord in the switchboard, by means of a twisted pair of wires.

To make tests from the main distributing frame or terminal rack, wires of a twisted pair are connected to the binding posts in the testing cabinet, and run to a pair of suitable connectors located near the distributing frame. A flexible four-conductor cord (with an arrester plug attached to one end, if protection is of the heat coil type) is used to complete the connection between the connectors and the arresters on the distributing frame.

With the connections completed as described, it is possible to test either in through the switchboard or out on the line.

Another equipment has cabinet work the same size and made of the same material as the one previously described. It is designed for use in connection with a magneto switchboard where a less elaborate and yet reliable testing circuit is desired.

A Weston No. 24 round pattern voltmeter, scale 0-50 volts, is mounted in the face of the cabinet. The testing circuit is equipped with four keys and is so wired that the following tests may be made:

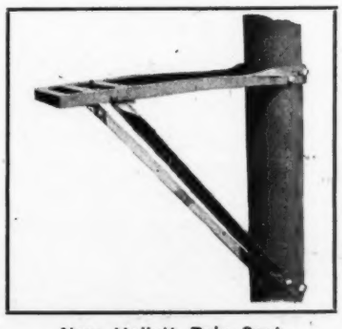
1. Locating grounds on the tip side of line.
2. Locating grounds on the sleeve side of the line.
3. Measuring metallic loop line resistance.
4. Measuring the voltage of the testing battery.

No operator's telephone equipment is included with this testing cabinet. A two-conductor flexible cord and a single conductor grounding cord are provided with each testing cabinet.

These new cabinets are proving very popular with Kellogg customers, a large number having been installed since thy were placed on the market.

The New Hallett Pole Seat.

An improved design for a pole seat recently brought out by the Hallett Iron Works, Chicago, Ill., will command



New Hallett Pole Seat.

favorable attention among construction and maintenance men. It is an extraordinarily inexpensive design, considering the number of advantages which are achieved in its makeup. The way in which the seat is designed and put together to secure great strength, convenience, durability and sightly appearance are evident from the illustration.

KEUFFEL & ESSER CO., New York, has acquired a deserved reputation for accurate and durable construction of its slide rules. Although formerly used only by engineers, and by them to a limited extent, the convenience of the slide rule is bringing it into every class of office. By its use simple manipulation of the sliding scales relieves workers of a vast amount of mental labor in multiplying and di-

The company has recently issued a catalog describing its various types of slide rules and pocket calculators, the latter being practically circular equivalents of slide rules.

W. N. MATTHEWS & BRO., St. Louis, is sending out a card relating to the Matthews cable joint, on which appears the statement, "The Beaumont Telephone Co. has a number of these joints in use which are almost continuously under water. Yes, they are moisture proof." It is well known that an expert splicer is not needed to install these joints.

The Federal Telephone & Telegraph Co., of Buffalo, has just distributed some handsome REMOVABLE DIRECTORY COVERS among its busy pay-stations. The covers are bound in black cloth embossed in gold with the company's name and the shield on the front. The covers were furnished by the Arnold Supply Co., of Milwaukee.

J. C. KIRKPATRICK, of the National Pole Co., of Escanaba, Mich., has recently returned from a six weeks' pleasure trip through England, Scotland, Ireland and France.

An Interesting Comparison.

Among many other interesting features to be found in TELEPHONY'S "Directory of the Telephone Industry" for 1911 is the accompanying comparative statement, taken from the twenty-four page section of the North Electric Co., pages 43 to 66 inclusive.

The North Electric Company is very busy just now on a fine automanual equipment for Galesburg, Ill., which will be ready for installation sometime in July.

Ironite Maintains Perfect Insulation Under Water.

Mr. H. H. Manny, of the Independent Telephone Co., Seattle, is authority for a statement showing satisfactory service given by Ironite duplex wire on a common battery line laid in the waters of Lake Washington, near Seattle. It was necessary to reach a station on the opposite side of the lake from the exchange with a common battery line at the lowest cost. Mr. Manny, after considering various ways and means of accomplishing the desired end, determined on his own responsibility to try a twisted pair of "Ironite" laid without protection on the bed of the lake. Accordingly, about fourteen months ago he laid a single pair of "Ironite" 3,000 feet long in the water, which in places runs over 200 feet deep, giving, as anyone who wishes to figure it out may readily ascertain, a very high pressure, sufficient to penetrate the insulation of any wire not protected by the best possible covering. This "Ironite" pair has been giving continuous service, carrying 24 volt battery, for fourteen months, and not a single instance of trouble has occurred in this unique submarine circuit. In fact, so satisfactory has the service been that a short time ago the Seattle Independent company laid a cable made up of 10,000 feet of "Ironite" under water. Sixty days after installation a test was made with a Wheatstone bridge, and alternating current supply of 150 volts used for the testing circuit. The tests were so satisfactory that at first it was believed that an error had been made, but a duplicate test secured the same result. The circuits carry 40 volt battery, and the "Ironite" is giving perfect satisfaction beside specially made copper wire which costs the company approximately $40 per thousand feet.

Mr E. E. Dewey, of the Paragon Sellers Co., has stated his belief that "Ironite" wire is the ideal for subscribers' drops on account of its strength and high insulation. This instance of results obtained under actual service conditions seems to be the most rigid proof which could be demanded of the ability of the wire to fulfill all claims made for its insulation. The great trouble with low grade insulation

COMPARATIVE STATEMENT OF INCOME & EXPENSES

THE COSMOPOLITAN TELEPHONE COMPANY - SMITHOPOLIS, CONN.

Fiscal year ended September 30th, 1910.

	AS OPERATED WITH MANUAL EQUIPMENT			ESTIMATE - IF AUTOMANUAL EQUIPMENT WERE USED			DECREASE OF COST
INCOME							
Rental Revenue	$127,395.79			$ 127,395.79			
Less: Rebates	311.92	$127,083.87		311.92	$ 127,083.87		
All Other Income		14,288.21			14,288.21		
TOTAL INCOME			$141,372.08			$ 141,372.08	
EXPENSES							
MAINTENANCE							
Central Station Equipment Repairs	$ 821.27			$ 3.90			$ 817.37
Central Station Equipment Labor	2,481.61			2,481.61			
All Other Maintenance Expense	8,867.18	12,170.06		8,867.18	11,352.69		
OPERATING							
Salaries and Wages Local	$ 15,664.68			$ 3,900.00			11,764.68
Light	476.07			158.69			317.38
Heat	319.06			127.62			191.44
Water	27.63			11.05			16.58
Rent	1,620.00			648.00			972.00
Miscellaneous Expenses	211.60			84.64			126.96
Power	794.71			794.71			
Salaries and Wages L.D. Operators	3,251.29	22,365.04		3,251.29	6,976.00		
GENERAL		25,988.89	60,523.99		25,988.89	46,317.58	
NET EARNING BEFORE DEDUCTING DEPRECIATION			$ 80,848.09			$ 95,054.50	
LESS: DEPRECIATION							
On Central Office Equipment (Estimated)	$ 6,900.00			2,439.37			4,460.63
On All Other Equipment, Etc.	12,100.00	19,000.00		12,100.00		14,539.37	
NET EARNINGS FROM OPERATING			$ 61,848.09			$ 80,515.13	$ 18,667.04

WE HEREBY CERTIFY, that the foregoing statement of Income & Expenses for the fiscal year ended Sept. 30-1910, was compiled from reports submitted to us for the purpose of comparison with an estimated statement of Operations, using the Automanual equipment, and that the same is in accordance and agrees therewith, except that the Depreciation charge of $19,000.00 has been arbitrarily divided between the Central Office equipment and the remaining equipment of the City exchange, in accordance with a rate of Depreciation determined upon by Mr. J. P. Boylan.

Yours truly,
Ernst & Ernst
Certified Public Accountants

In accordance with instructions, I have compiled the above statement of Income & Expenses of The Cosmopolitan Telephone Company, Smithopolis, Conn. item for item to that furnished by Ernst & Ernst, Certified Public Accountants, for the fiscal year ending September 30th, 1910.

The Ernst & Ernst statement shows actual Income & Expenses for the year 1910, and my statement assumes the use of Automanual Equipment covering the same period.

Yours truly,
J. P. Boylan
Consulting Traffic Engineer

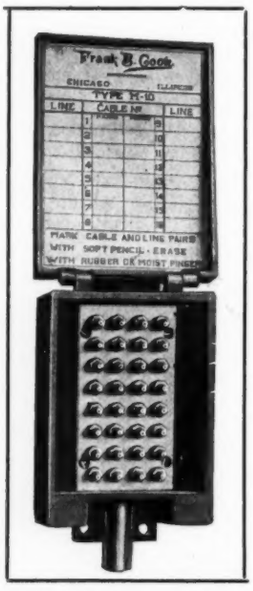
Reprint from North Electric Company's Twenty-Four Page Section in Telephony's Directory for 1911.

is that while it may run very high on a factory test, it rapidly deteriorates after the first few months in service. A fourteen months' submersion test makes it apparent that "Ironite" is not subject to this fault.

New Iron Box Cable Terminal Made by F. B. Cook.

The illustration clearly shows the main features of a new cable terminal which requires no pothead, manufactured by Frank B. Cook. This is designed for terminating aerial cable, and taking off feeders to house and office terminals. This type makes its own pothead and supersedes the old type M-7. Its code number is M-10.

It is not equipped with protection devices, but fuses may be cut in between the drop and inside wires, if desired.



M-10 Cook Terminal.

Cable pairs are brought to the front or outside of the panel, shown in the illustration, and soldered in place for permanent connections. Jumper wires lead off from the locknut binding posts directly through the bottom of the terminal where openings are provided on either side of the nozzle through which the cable enters. The terminal is an iron box with hinged cover, is small and compact, maintains high insulation, and requires very little compound for filling.

As to the Commercial Automobile.

For a number of years it has been clearly apparent to a few thinking men who have made a close study of transportation methods, that the horse-drawn vehicle was utterly inadequate as a medium of freight transportation, and that its logical successor would be the commercial car with its increased efficiency and its ability to do more and better work for less money. This fact, accepted at first only by the discerning few, whose business it was to investigate such matters, has been forced upon the general public so that today any up-to-date business man will admit that the commercial car is here to stay.

The growing approval of the public for commercial cars is largely due to the efforts of the American press. Every edition of representative newspapers and periodicals has given interesting and instructive information concerning the progress of the commercial car industry and many special instances have been cited, showing conclusively and definitely the superiority of the new method of transportation. However, this publicity, while exceptionally valuable as a medium of spreading the facts among the largest possible number of people is, of course, secondary in value to the actual achievements of the cars themselves, a long list of triumphs of economical efficiency that have been made possible by the steady improvement in construction and design accomplished by the specialization of a few car manufacturers who are building for the future as well as the present.

Page & Hill's New Preserving Plant.

Page & Hill Co., extensive dealers in cedar poles and posts at Minneapolis, Minn., have installed a plant for giving cedar poles a preservative treatment at their Minnesota Transfer yards. As wood preserving has gone beyond the experimental stage and demonstrated that a thorough and scientific treatment will add materially to the life of a pole, thereby effecting a great saving in the annual cost of pole line maintenance, Page & Hill have decided to add a plant of this character to their industry.

Monroe Electrical Company Moves to Toledo.

The Monroe Electrical Manufacturing Co., of Monroe, Mich., has moved its offices and factory to Toledo, Ohio, at 28-32 St. Clair street. The company will have enlarged facilities for taking care of its customers' wants, and is prepared to make prompt shipment of any orders received.

New Board for Saybrook, Ill.

The Saybrook (Ill.) Telephone Co. has just ordered a two-position board like that shown in the illustration, only in this case there are to be but three panels and the drops will be mounted ten per strip. This will give the board an ultimate capacity of 240 lines.

A letter from Mr. L. Y. Means, manager of the company,

Monarch Switchboard of Type Installed at Saybrook, Ill.

tells the Monarch company that this equipment was chosen after a most thorough investigation. A complete arrester and cross connecting equipment of Monarch manufacture is also to be installed.

A Nebraska man qualifies as the meanest man. He has induced his daughter to fall in love with a half-breed Indian on the grounds that a girl in love is a light eater.

Estimating on a Storage Battery Installation.

Managers of magneto systems who intend to change over to common battery frequently fail to appreciate the need for going into details in regard to accessory material for the main pieces of apparatus while making up specifications

and estimates. An example is the storage battery, which requires supports, testing instruments, etc. The Electric Storage Battery Co., Philadelphia and Chiacgo, furnishes the following list of material required for a complete storage battery outfit.

Elements; jars or tanks. bolt connectors (or busbars, if tanks are used); terminal lugs or terminal cups; electrolyte; sand trays and insulators for glass jars; insulators only for tanks; hydrometer; racks or stringers; one set of cell numbers; one pair socket wrenches for bolted connection jars; vitrified bricks to go under racks.

Oshkosh Mfg. Co. Succeeds Three Well-Known Names.

The advertisement of the Oshkosh Mfg. Co., succeeding the Oshkosh Logging Tool Co., the A. Sanford Logging Tool Co. and the Oshkosh Tool Mfg. Co., as shown in this issue, involves an interesting story.

It is the story of two companies which have been competitors in the tool business since the old days, one always endeavoring to put out better tools than the other, and both of them succeeding to a wonderful extent in constantly puting out new improvemens.

The A. Sanford Logging Tool Co. was started in a small shop in 1853. At that time it had the field practically to itself. Soon after it took into its employ Mr. Elmer Leach, who stayed with the Sanford company until 1885, when he started the Oshkosh Logging Tool Co., taking in with him Mr. C. Nygaard, the general superintendent of the new factory.

The new company had a hard struggle to get a start, having but very little capital, not even enough to build a small shop and buy material for tools. The promoters, under such difficult conditions, had a hard time of it. The first order the new company received was from Geo. B. Carpenter & Co.

The persistent spirit of the promoters, which has made "Oshkosh" tools such a success, slowly but surely brought the new company before the atention of the public. While the A. Sanford Logging Tool Co. stuck almost entirely to labor-saving tools and devices for lumbermen, the Oshkosh Logging Tool Co. made more of a specialty of time, money and labor-saving devices for telephone, telegraph and railroad lines and contractors, in which fields its tools have become known everywhere.

All three of these companies had men on their payroll whose principal duty was to perfect new time-saving inventions and the consolidation of the three gives the new company a remarkable and unique force of experienced perfectors and manufacturers who thoroughly understand the business in which the tools are to be used.

A short time ago the company put up an immense factory and equipped it with special machinery, much of which was designed by its own men.

New Rural Line Hand Book Issued by Dean Company.

Every rural line company ought to have a copy of the Dean "Handbook on Rural Lines." It has just been printed, and is furnished on a special plan which enables a company to obtain one free book on application to the sales department, and after conforming with certain specified conditions. Otherwise the book may be obtained by anyone at a price of 50 cents for paper cover, or $1 in a more durable binding. It is certainly worth that money, and more, too.

It has nearly 200 pages of closely written matter and thoroughly clear, practical illustrations. Every picture tells a useful story, and every line of printed matter gives information which the rural line operator needs to have either for building or maintaining his system in good condition.

It covers the various features which one needs to know to build right for subscribers' telephones, line and central office equipment. It tells how deep to set poles, how to guy to rocks, trees, or anchors set in the ground, what tools to buy and how they are used, and, in fact, seems to cover the ground thoroughly from picking out a screwdriver to cutting in transpositions.

Other Dean books which are under way will be valuable additions to the library of any telephone man, and everyone should start in with the present book, so that he may have a complete set. Advance notices of the book were sent out to some old customers of the Dean company, and the distribution of a few brought in orders for many more, accompanied by the cash, showing how the book was appreciated. Although it is designed primarily for rural line companies just starting in business, there is meat in it for many a man who has spent a lifetime at telephone work.

O. Morsman Joins Dean Sales Force.

The many friends of Mr. O. Morsman, well known as an Independent telephone salesman for the past six years or more, will be interested to learn that he has accepted a position as special sales engineer in the interests of the Dean Electric Co., Elyria, O.

Mr. Morsman has been actively engaged in telephone work for the past fifteen years, and has engineered some of the best telephone exchanges existing in Michigan and Wisconsin. His experience is not confined to any one end of the business, but covers the whole telephone field in a very broad manner. Mr. Morsman has until recently acted as general salesman for the Kellogg company, covering practically all of the United States and Canada on general lines of business. He is, therefore, a man well known to the telephone trade throughout the country. Any of his friends, desiring to reach him by mail, can do so by forwarding letters in care of Dean Electric Co., either at Elyria, Ohio, or 1739 Walnut street, Kansas City, Mo.

W. Roy McCanne Takes Place with Eastman Kodak Co.

Mr. W. Roy McCanne, secretary and treasurer, and also a director, of the Stromberg-Carlson Telephone Manufacturing Co., Rochester, N. Y., will hereafter devote a part of his time to the affairs of the Eastman Kodak Co., Rochester, N. Y., with whom he has taken an important position. He will continue to hold his present offices with the Stromberg-Carlson company, devoting the necessary time to its financial affairs.

"The Automanual Way."

The North Electric Co., Cleveland, Ohio, has issued a booklet which will be read with keen interest by the intending investor in new equipment, the traffic expert, and equipment engineer. It contains strong claims for the Automanual system, developed with carefully prepared traffic data. An interesting leaflet on measured service is mailed with it.

Walpole Rubber Company's New Chicago Address.

The Walpole Rubber Co. and the Massachusetts Chemical Co. announce that the Chicago branch of these firms is now located in the Brooks Building, Jackson Boulevard and Franklin street, and is now in a position to serve their customers more promptly and efficiently than before.

W. L. Silvey, for many years connected with the Dayton Manufacturing Co., of Dayton, Ohio, has engaged in business for himself at 10-12 South Canal street, Dayton, under the name of the Silvey Electric Co. Mr. Silvey is one of the pioneers in storage battery work and is said to have been the first to light passenger trains direct from storage batteries. He is now perfecting a new type of storage battery for telephone work, which he expects to have ready for the market within a month.

Building of Telephone Journal Press.

Telephone Journal Press

The accompanying illustrations afford some idea of the printing establishment of the Telephone Journal Press, at Vinton, Iowa. From a small shop, installed to handle the printing of the *Western Telephone Journal* in 1905, this corporation has grown until it owns and occupies a modern fire-proof building, 42x124 ft. in size, which is equipped with up-to-the-minute printing machinery and appliances. The shop is equipped to handle the highest quality of halftone and color printing, used in fine work, such as catalogue, magazine and book work, along which lines the Telephone Journal Press specializes.

View of Portion of the Press Room.

For a long time before the sale of the *Western Telephone Journal* to other publishing interests, the Press was busily enlarging its scope and taking on general printing of all kinds. Owing to the close affiliation of its management with the telephone publishing field, it was not unnatural that the company should pay particular attention to the handling of telephone printing. Since the sale of the paper, even more attention has been paid to this branch of the business, although the general commercial work has not been neglected, and today the company is doing high grade telephone and commercial printing for a field extending from Maine to Oregon, and its reputation is well established.

The officers of the company are: George D. McElroy, president; J. E. Magly, vice-president and superintendent; and Will M. Traer, secretary and manager.

Mr. H. C. Slemin, sales and advertising manager of the Stromberg-Carlson Telephone Manufacturing Co., of Rochester, N. Y., and Mr. E. A. Hanover, purchasing agent, called at Telephony's offices last week. They also visited Kansas City, Mo.

New LaFayette (Ind.) Company.

An important announcement to the telephone field is made by the LaFayette Electric & Manufacturing Co. which has purchased the plant and equipment of the Sterling Electric Works, at LaFayette, Ind. The new concern announces that it will continue the manufacture and sale of Sterling telephones and electrical supplies, and a high standard of excellence will be maintained in all of its products. Repair parts and new apparatus to match old Sterling equipment can be furnished promptly. Evan Shelby, well known to the telephone field, has been appointed assistant general manager of the new company.

Mr. Shelby advises that in addition to the products manufactured in the past, the new company will make an electric brake for interurban railways and other electric street cars, and other new electrical and mechanical devices will soon be placed on the market. Samuel T. Murdock, secretary and general manager of the Indiana Lighting Co., secretary of the Chicago, South Bend & Northern Indiana Railway, and treasurer of the Evansville & Southern Indiana Traction Co., is the president of the LaFayette Electric & Mfg. Co. Henry C. Ebert, president of the Cincinnati Car Co., is vice-president, and Henry W. Marshall, who is president of the Western Construction Co., is the treasurer. Other officers of the new company are: Secretary, David B. Clark, former master mechanic of the Cincinnati Traction Co.; directors, Thomas Bauer, president of the LaFayette Box Board Co.; Thomas Duncan, vice-president of the Duncan Electric Manufacturing Co.; Robert B. Wallace, treasurer and manager of the Wallace Machine & Foundry Co.; Julius Berlovitz, and the officers named above.

Death of Henry H. Sykes.

Mr. Henry H. Sykes, general manager of the Southern New England Telephone Co., New Haven, Conn., died on May 18. He became connected with the American Telephone & Telegraph Co. in New York on graduation from the Massachusetts Institute of Technology in 1891, remaining with that company until 1895, when he was made chief engineer of the Bell Telephone Co. of Missouri. After seven years' work in St. Louis he was transferred to New Haven, as general superintendent of the Southern New England company, and in 1907 was made general manager of the company. Although the last three years of his connection with the company were not very active, because of ill health, his diligent and faithful work during the first years did much toward putting the company on the road to prosperity.